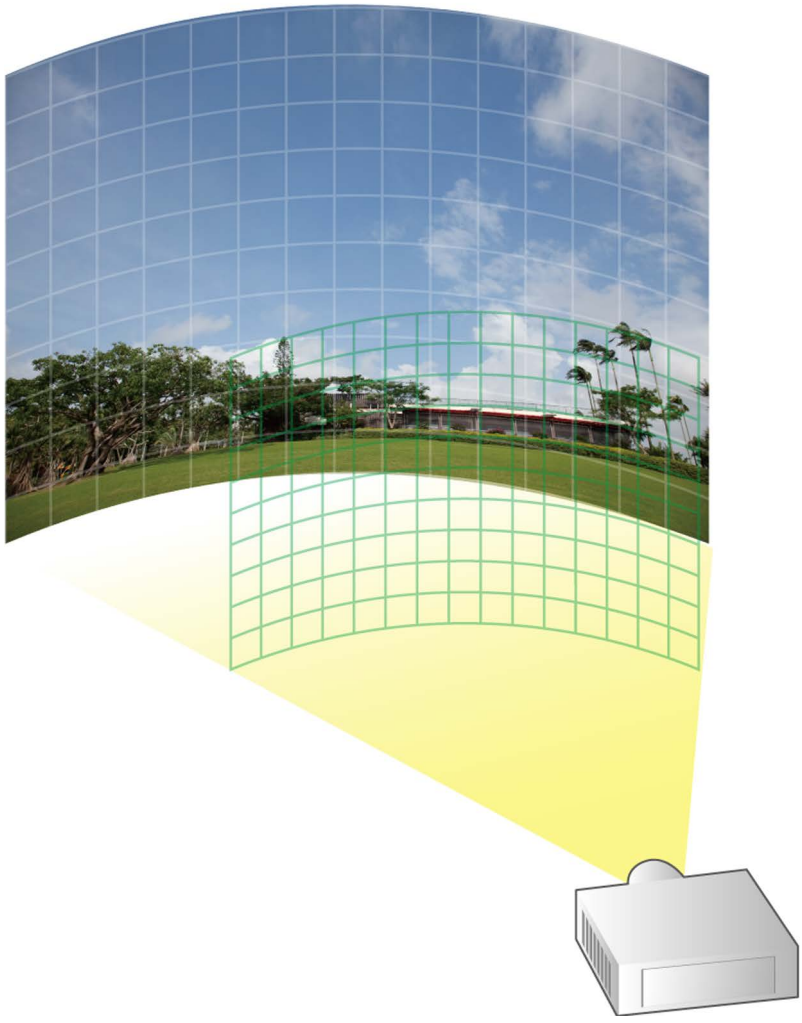
Panasonic

Operating Instructions

Geometric & Setup Management Software

Geometry Manager Pro Ver. 6.7

Windows



Thank you for purchasing this Panasonic product.

■ Before using this software, please read the instructions carefully.

DPQP1473ZA/X1(E)

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Precautions and Disclaimers

- Precautions regarding security

When using the “Geometric & Setup Management Software” (Geometry Manager Pro), security breaches of the type described below are conceivable.

- Leakage of your private information via this software
- Illegal operation of this software by a malicious third-party
- Harm to or cessation of operation of this software by a malicious third-party

Be sure to implement sufficient security measures.

- Make sure the password is as hard to guess as possible.
- Change the password periodically.
- Panasonic Connect Co., Ltd. and its affiliated companies never directly ask customers for their password. Do not give out your password even if directly asked by a third-party representing themselves as Panasonic Connect Co., Ltd.
- Run Windows Update regularly to keep your computer up to date.
- Always use on a network that has safety protection such as a firewall implemented.
- Set the password for the computer you are using in order to set limits on user accessibility.

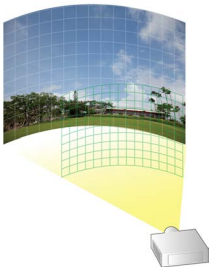
- This software makes use of the following software.
  A portion of this software is based in part on the work of the Independent JPEG Group.

- The illustrations and display examples used in this manual may differ from the actual product.

- Panasonic Connect Co., Ltd. cannot be held liable for damages arising from data corruption or loss as a result of using this projector.

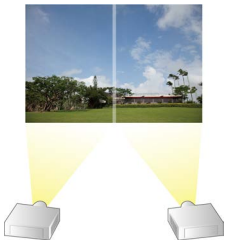
What You Can Do with “Geometry Manager Pro”

Using this software allows you to perform real-time geometric compensation and other fine adjustments and corrections that cannot be handled on the projector side.
Even when you use this software, however, some functions and expanded functions may be limited if projector and computer activation are not completed.
☞ “Activation” (page 12)
☞ “Functions which are expanded as a result of activation” (page 32)
In addition, the correction and adjustment functions may be limited with some models.



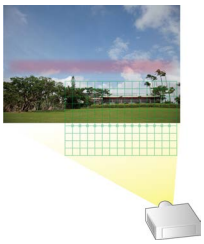
■ Geometry correction

When projecting images onto a screen surface that is not perfectly flat (such as the wall of a building) or projecting them onto a screen surface at an angle, the images become distorted.
When projecting images in these kinds of special environments, the geometry correction function serves to correct the images to counter the shape of the screen surface.



■ Edge blending

This function serves to correct the brightness and makes the joins between the images less visible when the images projected from a multiple number of projectors are combined to form a single image.



■ Uniformity

This function makes it possible to correct color irregularities in projected images – for example, those resulting from irregularities in the screen surface or from surrounding light and shade.

■ Masking

This function makes it possible to mask certain parts of the projected images, projecting only the required parts.

■ Auto Screen Adjustment (AUTO ADJUST)

This allows simple automatic adjustment of geometry correction, edge blending, color, and brightness according to the shape of the screen through use of a camera.

Note

- Both “Geometry Manager Pro” and the “Geometry Manager Pro - Auto Screen Adjustment plug-in software” must be installed to use the Auto Screen Adjustment function.
- To use the Auto Screen Adjustment function, prepare a camera separately. ☞ “Camera connection” (page 115)

■ Other functions

Lens adjustment, color matching, color adjustment, and input signal adjustment can be performed.
Some of the projector’s menu operations can also be carried out on a computer screen.

Check Your Computer

System requirements

The computer must meet the following requirements in order to use the supplied software.

OS: Microsoft Windows 11 Windows 11 Home 64bit, Windows 11 Pro 64bit
Windows 10 Windows 10 Home 32/64bit, Windows 10 Pro 32/64bit
Compatible with English, Japanese or Chinese language versions of the above operating systems.
• For a 64bit OS, this application runs on WOW64.
CPU: At least minimum required by OS
Memory: At least minimum required by OS
Available disk space:
16 GB or greater (Further available space is necessary to save projector information)
Other requirements:
A display with a resolution of 1 600 × 900 pixel or higher using High Color (16 bit) or higher
LAN port for a wired LAN (10Base-T/100Base-TX / 1000Base-T)
USB 2.0-compatible port or higher (when using the Auto Screen Adjustment function with a camera)

Note

- Please understand that operation is not guaranteed if this software application is used in a system environment other than that specified above or on a home-built computer.

Proper operation cannot be guaranteed for all computers even if they satisfy the above requirements.

Necessary Environment for Computers to be Connected

Be sure to check the following settings when connecting projectors to the computer via a wired LAN connection.

Computer with a built-in LAN function

- Is your LAN switched on?

Computer without a built-in LAN function

- Is your LAN adapter properly recognized?
  Please install the LAN adapter driver beforehand.
  For details on how to install the driver, please refer to instructions accompanying the LAN adapter.
- Is your LAN adapter switched on?

Note

- It may not be possible to establish a connection with the projector if security (firewall) software or utility software for LAN adapter are installed.
  ☞ “Frequently Asked Questions” (page 158)
- Operation is not guaranteed for all LAN adapters and built-in LAN adapters in the computers.
- An Internet connection is required to perform activation.

Installing/Uninstalling Software

Installation

Quit any applications running in Windows before starting installation. Failure to do so may result in improper installation.

Installing “Geometric & Setup Management Software” (Geometry Manager Pro)

1 **Download the software.**

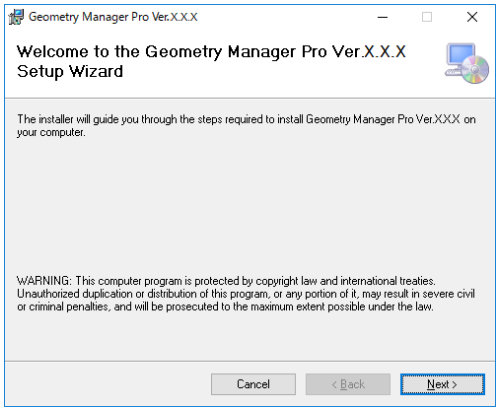
- Download “Geometry Manager Pro”.
  Log in to PASS*1 on the following website, click [Software Download], and follow the on-screen instructions to download the software.
  https://panasonic.net/cns/projector/pass/
  You must be registered with PASS to log in to it.
  *1 PASS: Panasonic Professional Display and Projector Technical Support Website.

Note

To enable use of the Auto Screen Adjustment function, download the “Auto Screen Adjustment plug-in software” as well.
☞ “Installing the “Auto Screen Adjustment plug-in software”” (page 8)

2 **The installer starts up.**

Double-click the downloaded “Installer.exe” file.

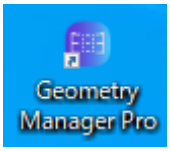


Follow the on-screen instructions to install the application.

Note

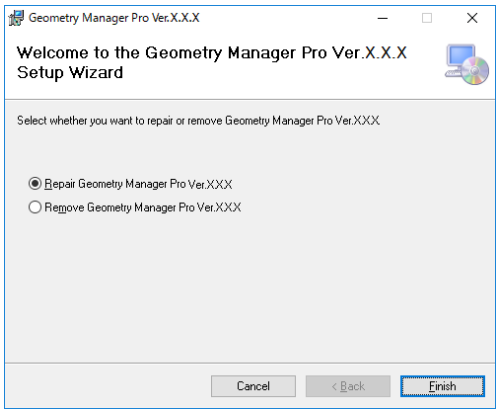
Perform this procedure using an account with administrator privileges.

3 **As soon as the installation process is completed, a shortcut icon is created on the desktop.**



Note

If an identical version of the software is already installed, the following screen for selecting whether to repair or remove the existing version appears.



- To repair defects in the software, select “Repair Geometry Manager Pro”, and click [Finish].
  To uninstall the existing version before installing the software again, select [Remove Geometry Manager Pro], and click [Finish].

Installing the “Auto Screen Adjustment plug-in software”

1 Download the “Auto Screen Adjustment plug-in software”.

- Both “Geometry Manager Pro” and the “Geometry Manager Pro - Auto Screen Adjustment plug-in software” are necessary to use the Auto Screen Adjustment function.
  Log in to PASS on the following website, click [Software Download], and follow the on-screen instructions to download the “Auto Screen Adjustment plug-in software”.
  https://panasonic.net/cns/projector/pass/

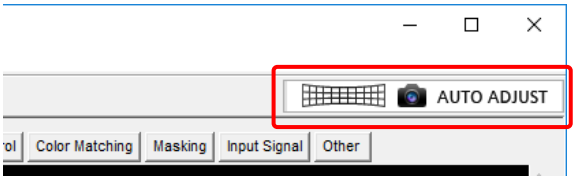
2 The installer starts up.

Double-click the downloaded “AusInstaller.exe” file, and follow the on-screen instructions to install the application.

Note

- Perform this procedure using an account with administrator privileges.
- The compatible combination of versions for the “Auto Screen Adjustment plug-in software” and the “Geometry Manager Pro” is predetermined. Therefore, an error message will appear if you attempt to install an incompatible version of the “Auto Screen Adjustment plug-in software”. In such cases, check whether the version of “Geometry Manager Pro” that appears in the error message matches the software version found on the above website. If the versions match, download and install only “Geometry Manager Pro” from the website. If the versions do not match, download and install both “Geometry Manager Pro” and the “Auto Screen Adjustment plug-in software”.

3 When installation is complete, the [AUTO ADJUST] (Auto Screen Adjustment) button at the top right of the “Geometry Manager Pro” main screen will be enabled.



Note

If you click the [AUTO ADJUST] button while the “Auto Screen Adjustment plug-in software” is not installed, a message indicating that installation of the plug-in software is required will appear.

Software Uninstall

Enter and then select “Apps & features” in the search box of the task bar, select [Geometry Manager Pro Ver.＊.＊][*1], and click [Uninstall].

*1 The “＊” represent the version number.

Note

- Perform this procedure using an account with administrator privileges.
- Uninstalling “Geometry Manager Pro” will not uninstall the “Auto Screen Adjustment plug-in software”. Perform the same procedure as the above to uninstall the “Auto Screen Adjustment plug-in software” (Geometry Manager Pro - Auto Screen Adjustment plug-in).

Preparation

■ Projectors supported

For details on models compatible with “Geometry Manager Pro”, check the information found on the software download page after logging in to PASS on the following website.
https://panasonic.net/cns/projector/pass/

Note

No guarantees are made for the operations when the computer is connected to a non-supported projector.

■ Projector and computer connections

Connect the projector and computer using a LAN cable.
Up to 99 projectors can be connected.

Note

- Please use a crossing cable to connect the computer and projector when it is directly connected to the LAN.
- When using a hub to connect, whether or not a straight cable or crossing cable or both can be used depends on the system configuration. Please consult your network administrator for details.

■ Setting the Computer

Network Setup

- Set the IP ADDRESS, SUBNET MASK and DEFAULT GATEWAY according to the operating environment. (Please consult your network administrator for details.)
- If “use of automatic script” is checked for your web browser, please uncheck.
- If “Use of Proxy server in LAN” is checked for your web browser, please uncheck, or set the projector IP address to “Exceptions” in the detailed proxy settings.

■ Setting the Projector

Network Setup

Set the IP address, subnet mask, and default gateway according to your operating environment. (Please consult your network administrator for details.)
Set DHCP to OFF and set a fixed IP address, making sure that the entered IP address is not used by any other device on the LAN.
If the entered IP address is used by another device, the projector cannot be registered.

- For models that can be set, enable both WEB Control and Command Control.
- For models in which the Web port number can be set, set the port number to “80”.

Note

- Refer to operating manual of the projector for method on configuring the projector.
- If prompted to configure the settings for the administrator account in the startup screen or WEB control screen of the projector, complete those settings.
- This software identifies the projector using the configured IP address. If DHCP is set to ON in the projector network setting in a network environment that uses a DHCP server etc. the DHCP server may change the IP address allocated to the projector, making it impossible to connect using this software.
  Please ensure the server does not change the IP address by, for example, setting the DHCP server so as to fix the IP address allocated to the projector. (Please consult your network administrator for details.)

■ Activation

There are functions that are enabled and functions that are expanded by performing activation.
The upgrade kit (ET-UK20), Auto Screen Adjustment upgrade kit (ET-CUK10), and Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P) are required for activation. For details on compatible projector models, check the information found on the activation page by logging in to PASS on the following website.
https://panasonic.net/cns/projector/pass/
☞ “Functions which are expanded as a result of activation” (page 32)

Note

The “Auto Screen Adjustment plug-in software” must be installed and the Auto Screen Adjustment upgrade kit (ET-CUK10) must be applied on the projector or the Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P) must be applied on the computer to enable the Auto Screen Adjustment function.
However, some projectors will be in the state with the functions enabled or functions expanded without having to activate the upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10).
Also, some projectors do not support activation of the upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10).

■ Camera connection

To use the Auto Screen Adjustment function, prepare a camera separately.
For details on supported cameras and lenses and how to connect the camera to the computer, refer to “Auto Screen Adjustment” (page 115).

Activation

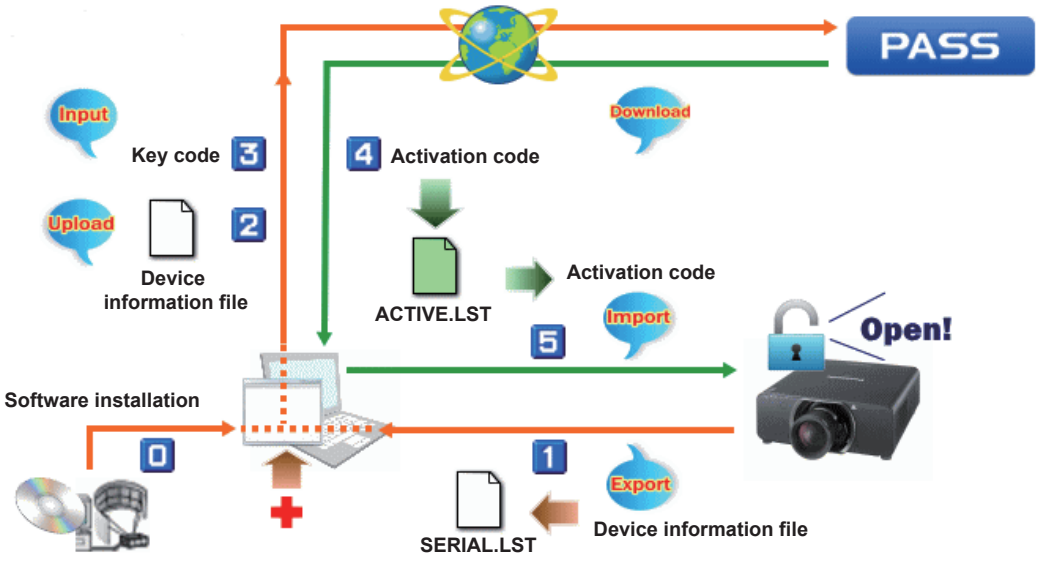
There are functions that are enabled and functions that are expanded by performing activation.
There are two methods of activation: one is to apply a kit on the projector to add or expand the functions of the projector (projector activation) and the other is to apply a kit on the computer to expand the functions of the software installed on that computer (computer activation).
The upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10) are required for the former method and the Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P) is required for the latter method. For details on compatible projector models, check the information found on the activation page by logging in to PASS on the following website.
https://panasonic.net/cns/projector/pass/
☞ “Functions which are expanded as a result of activation” (page 32)

Note

- Both “Geometry Manager Pro” and the “Auto Screen Adjustment plug-in software” must be installed to use the Auto Screen Adjustment function.
- Some projectors will be in the state with the functions enabled or functions expanded without having to activate the upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10).
- Some projectors do not support activation of the upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10).

Perform the projector activation

The flow of operations from installation to activation is as follows.
This sections describes projector activation.



Projector activation can be performed using one of the following two methods. Perform activation according to your operating environment.

Note

Please note that activation may fail if you attempt to change the method to a different one during activation.

■ Method 1: Method not involving file operation

When can connect to the Internet

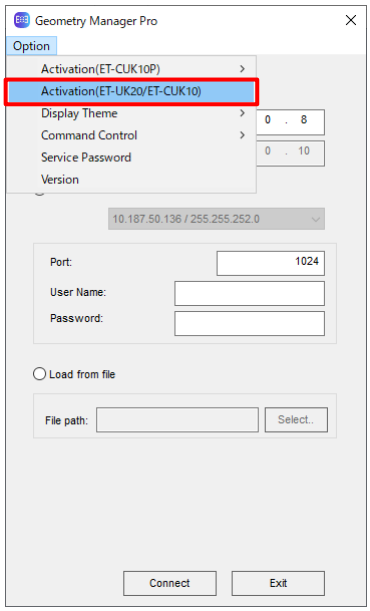
Connect to the Internet and perform activation from the computer while connected with the projector.

1 **Have the key code ready.**

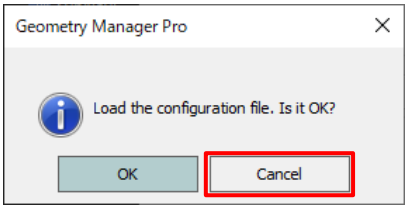
The key code is indicated on the key code label of the upgrade kit (ET-UK20) or the Auto Screen Adjustment upgrade kit (ET-CUK10).

2 **Start the software application, and display the Connection Setting screen.**

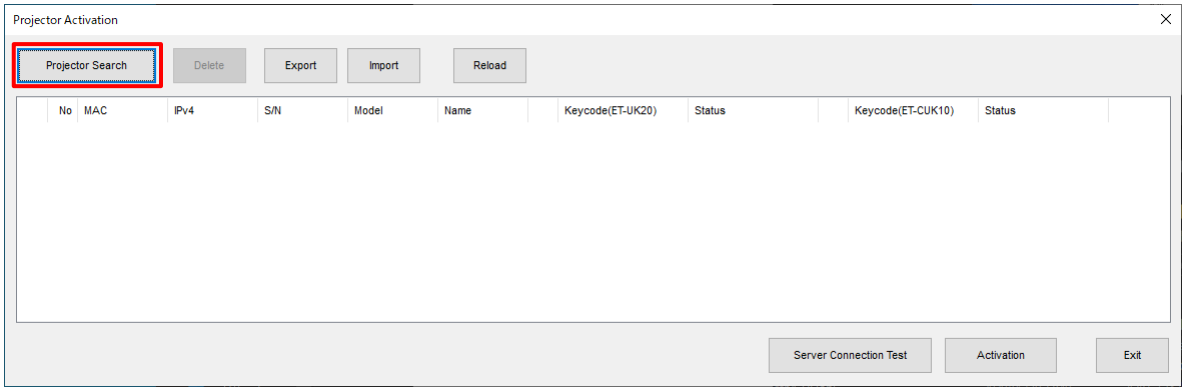
3 **Select [Activation(ET-UK20/ET-CUK10)] from the [Option] menu of the Connection Setting screen.**



The following screen appears if there is no loadable license management information, such as at initial startup. In this case, click [Cancel].

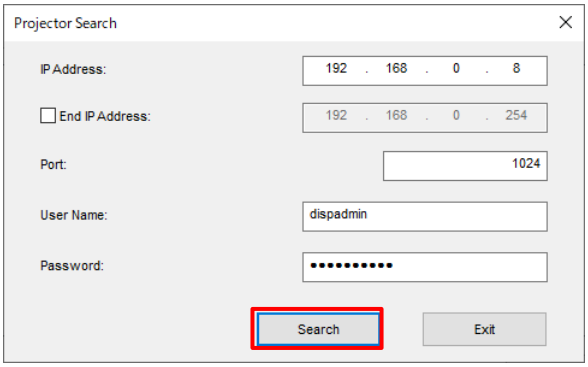


4 **Click the [Projector Search] button.**

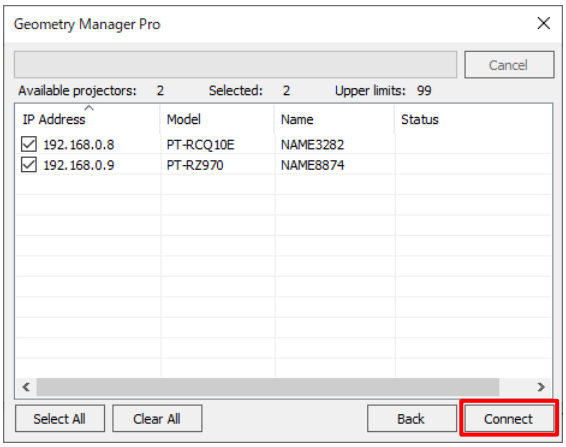


5 **Enter the IP address, port number, user name, and password, and click the [Search] button to search for the projector.**

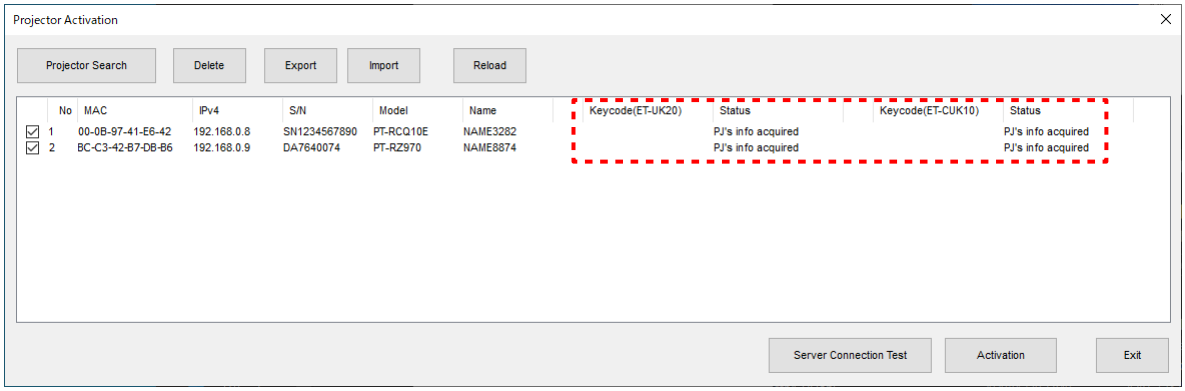
To search by specifying an IP address range, select the [End IP Address] check box and enter the IP address for which to end the search.



6 **Select the projector you want to connect to from the search results, and click the [Connect] button.**

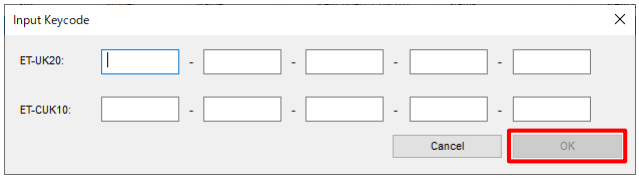


7 **Select the projector to be managed, and double-click in a license item you want to activate.**

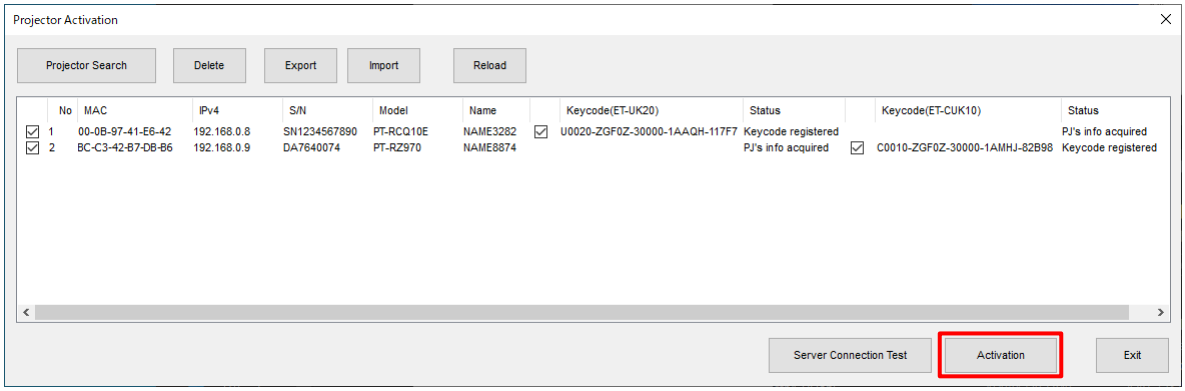


8 Enter the key code, and click [OK].

The [OK] button is enabled when you enter all 25 digits of any key code.

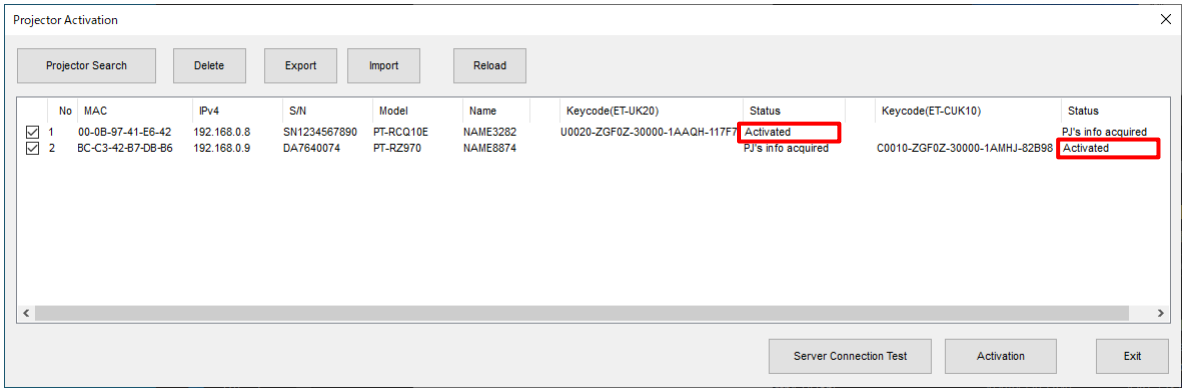


9 Click the [Activation] button.



10 Activation is complete when [Status] becomes “Activated”.

Exit the software application by clicking the [Exit] button.



When cannot connect to the Internet

Export the license management information including the device and key code information, and acquire the activation code using another computer that can connect to the Internet. The computer that will acquire the activation code does not need to connect with the projector.

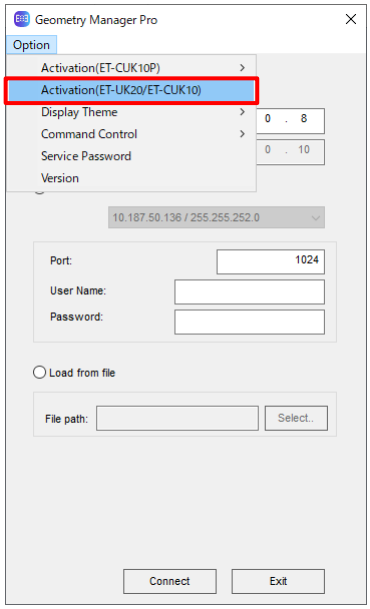
- **Operation of computer connected with projector**

1 **Have the key code ready.**

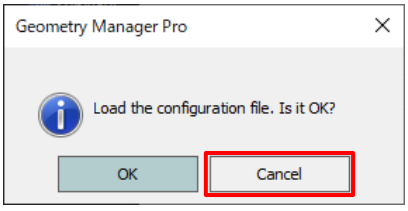
The key code is indicated on the key code label of the upgrade kit (ET-UK20) or the Auto Screen Adjustment upgrade kit (ET-CUK10).

2 **Start the software application, and display the Connection Setting screen.**

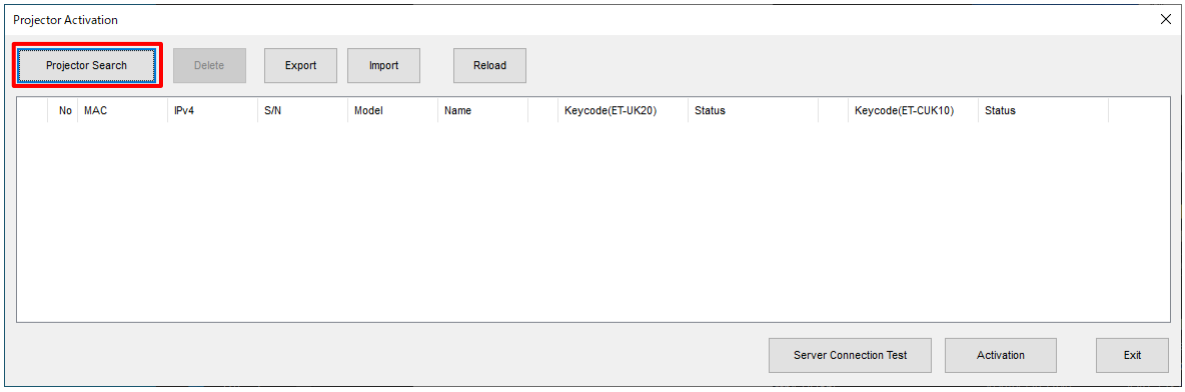
3 **Select [Activation(ET-UK20/ET-CUK10)] from the [Option] menu of the Connection Setting screen.**



The following screen appears if there is no loadable license management information, such as at initial startup. In this case, click [Cancel].

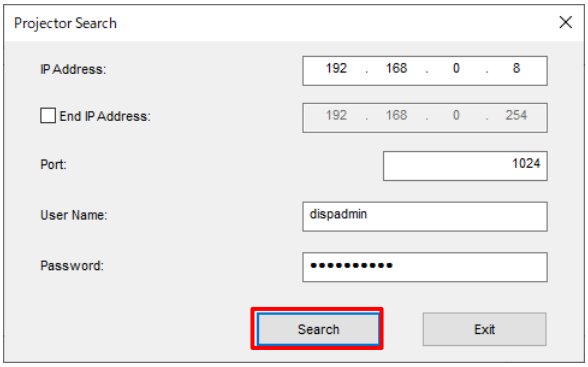


4 **Click the [Projector Search] button.**

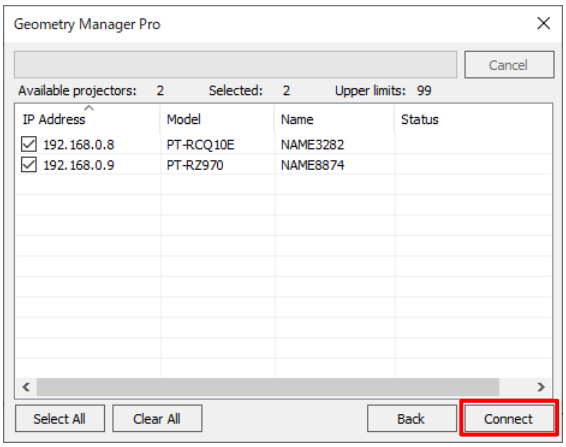


5 **Enter the IP address, port number, user name, and password, and click the [Search] button to search for the projector.**

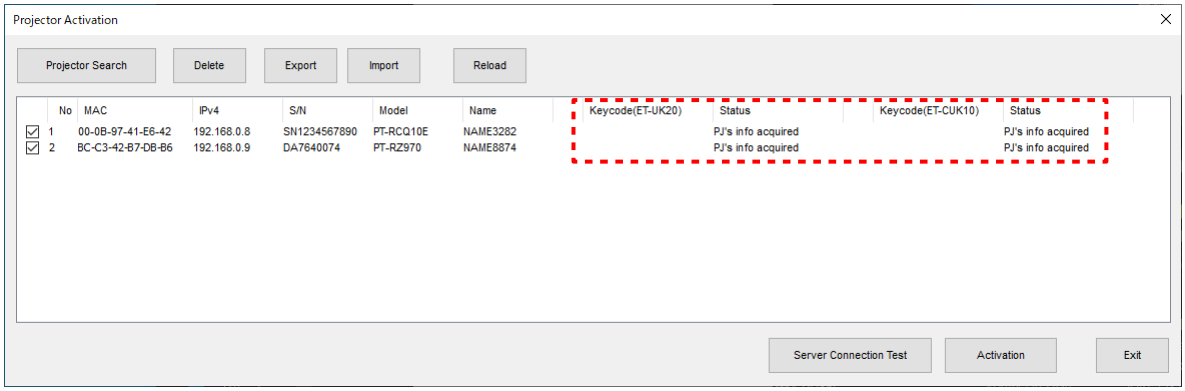
To search by specifying an IP address range, select the [End IP Address] check box and enter the IP address for which to end the search.



6 **Select the projector you want to connect to from the search results, and click the [Connect] button.**

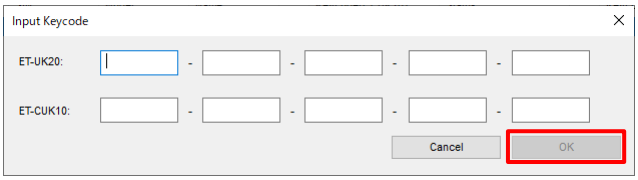


7 **Select the projector to be managed, and double-click in a license item you want to activate.**

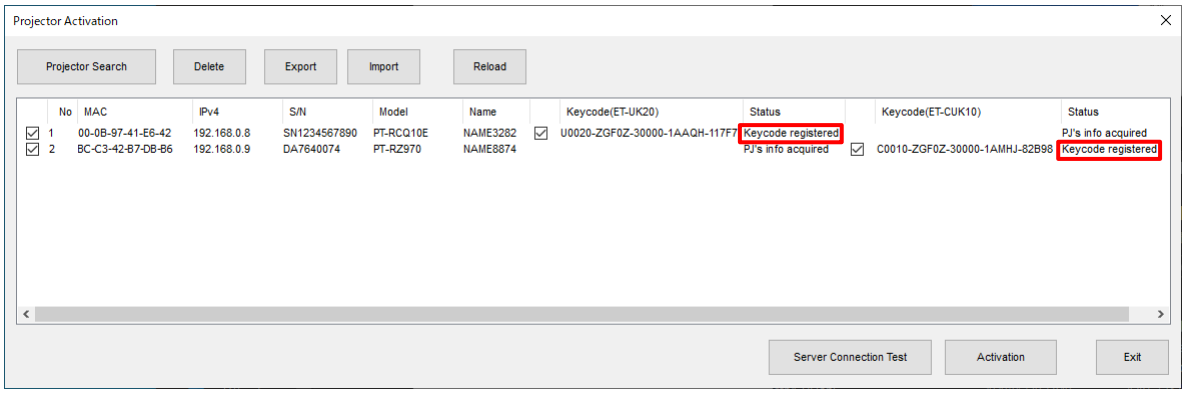


8 **Enter the key code, and click [OK].**

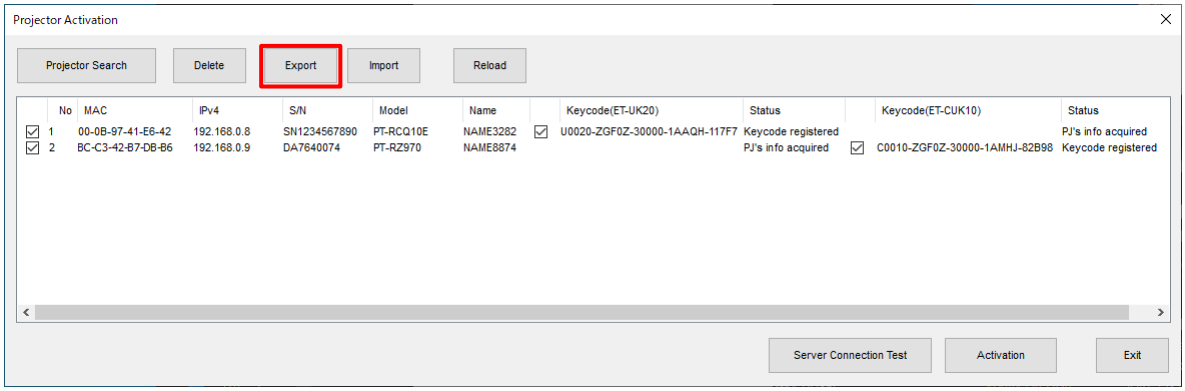
The [OK] button is enabled when you enter all 25 digits of any key code.



9 **Check that [Status] has become “Keycode registered”.**



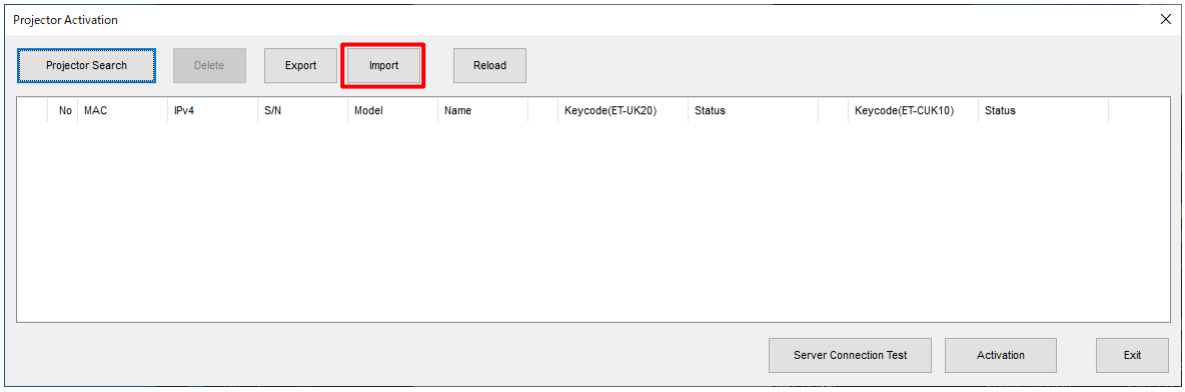
10 **Click the [Export] button and save the file to USB memory or other storage media.**



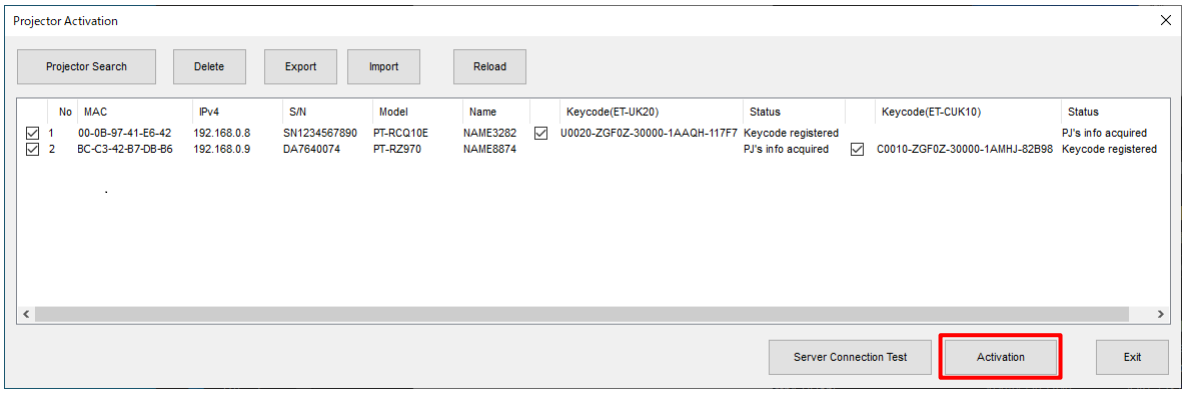
- **Operation of the other computer**

11 **Load the file saved in step 10 using another computer that can connect to the Internet.**

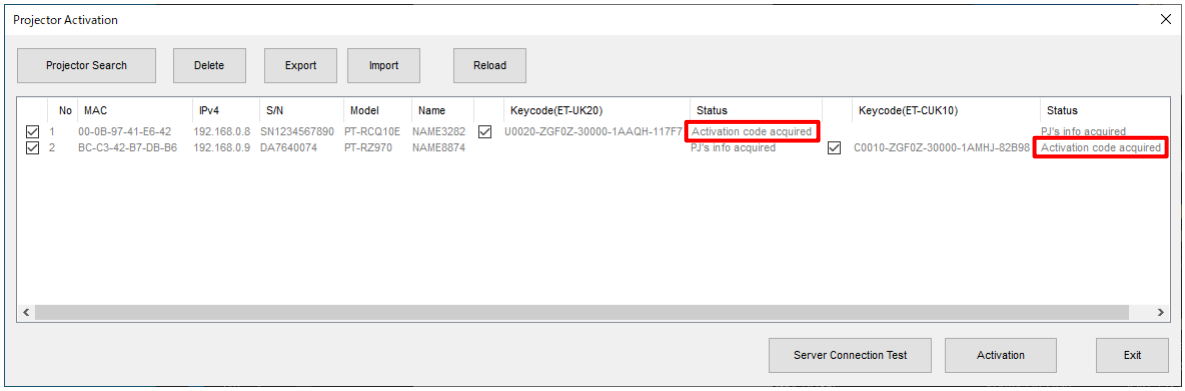
Start the software application, and select [Activation(ET-UK20/ET-CUK10)] from the [Option] menu of the Connection Setting screen. When the following screen opens, click the [Import] button.



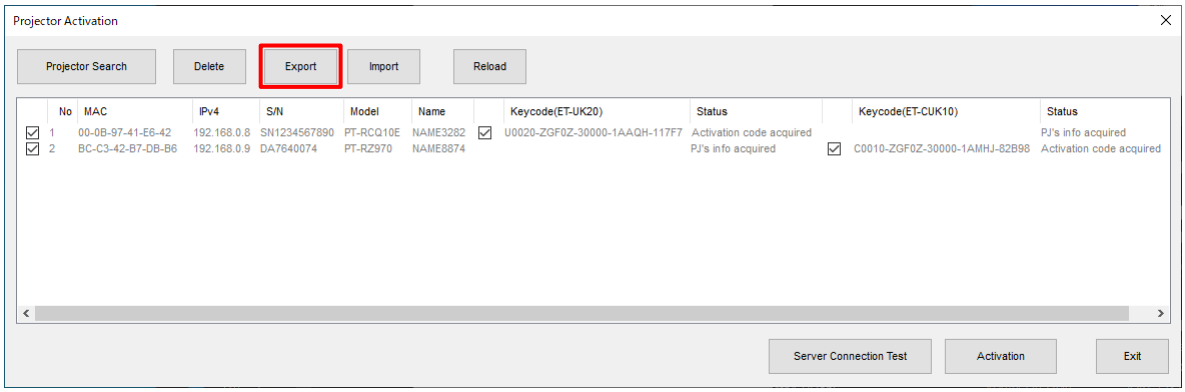
12 Click the [Activation] button.



13 Check that [Status] has become “Activation code acquired”.

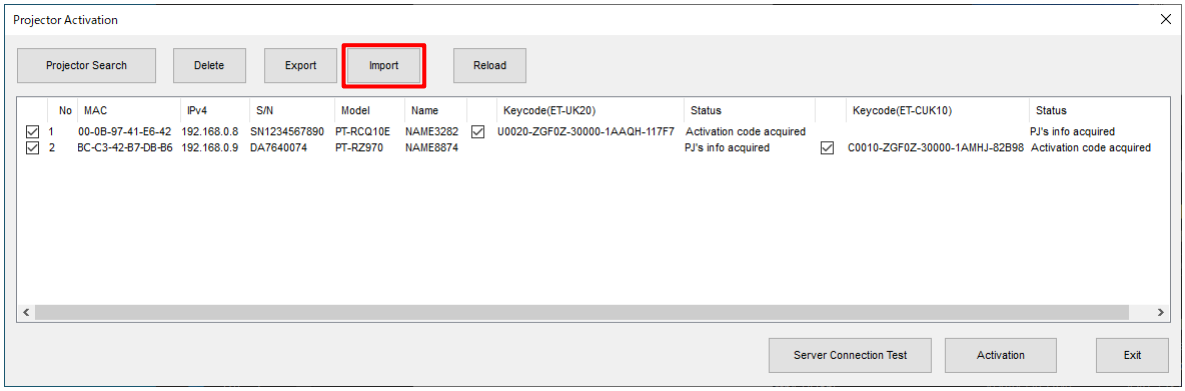


14 Click the [Export] button and save the file to USB memory or other storage media.

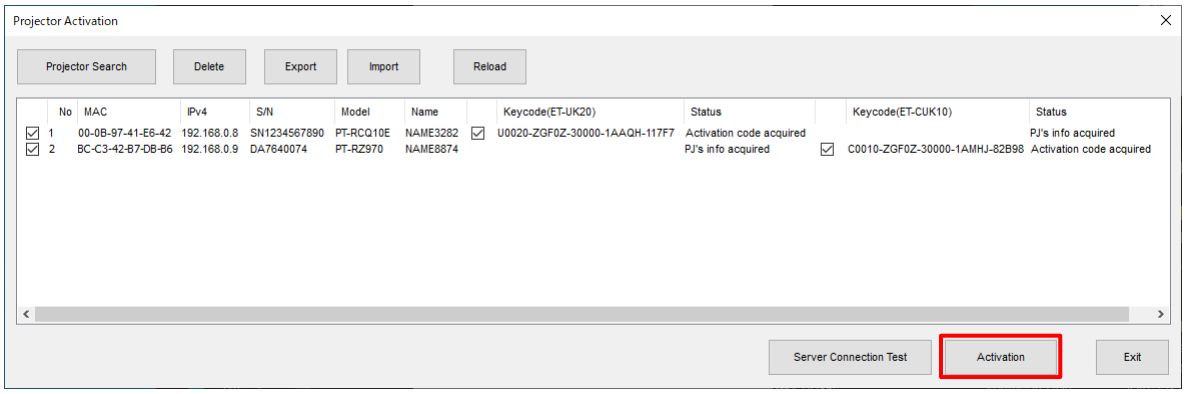


- **Operation of computer connected with projector**

15 Click the [Import] button on the computer connected with the projector, and load the file saved in step 14.

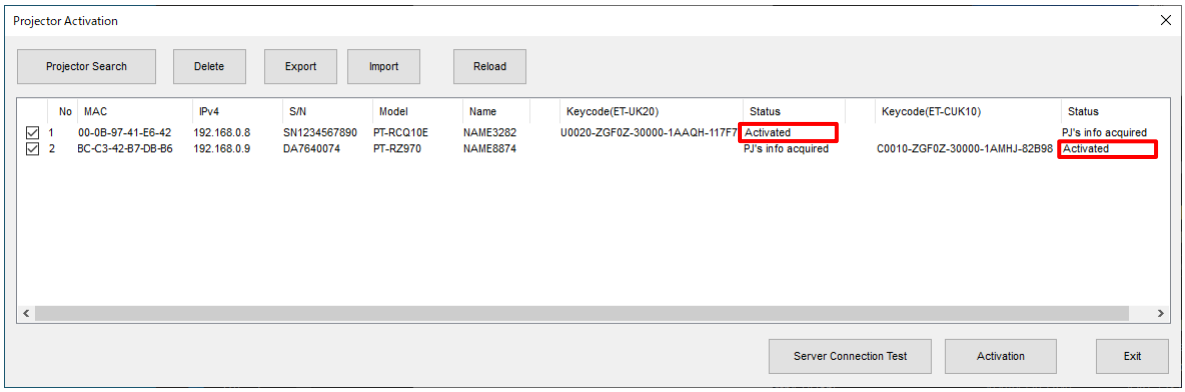


16 Click the [Activation] button.



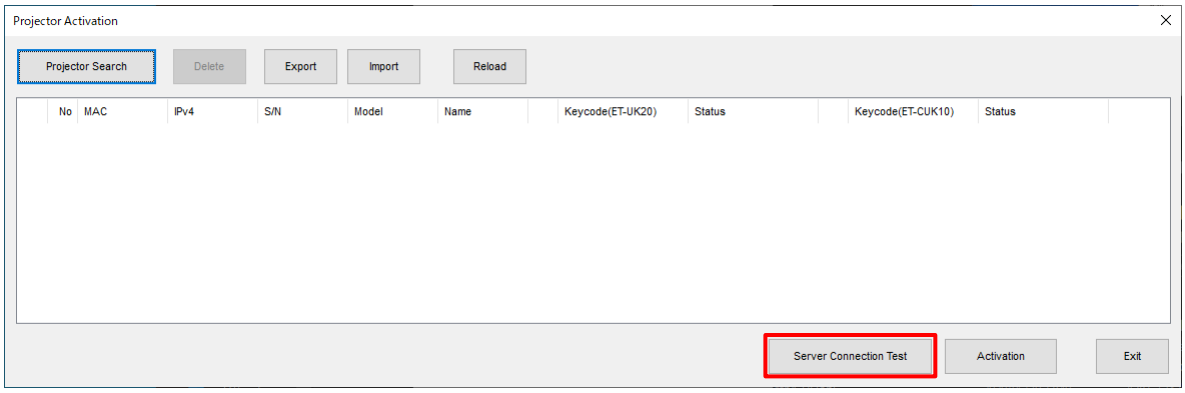
17 Activation is complete when [Status] becomes “Activated”.

Exit the software application by clicking the [Exit] button.

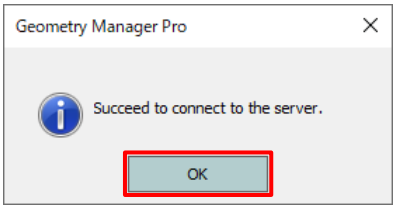


Note

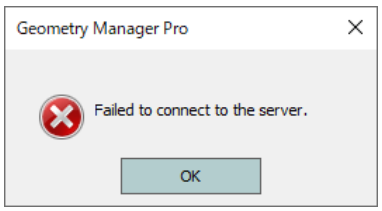
- Registering just the key code first is not possible.
- Deactivation or transferring the key code to another projector is not possible.
- To test connecting with the server, click [Server Connection Test].



If the connection test is successful, the following screen appears. Click [OK] to close the screen.



If connecting failed, the following error message appears. In this case, revise the Internet settings of the computer and then perform the connection test again.



■ Method 2: Method involving file operation

1 Have the key code ready.

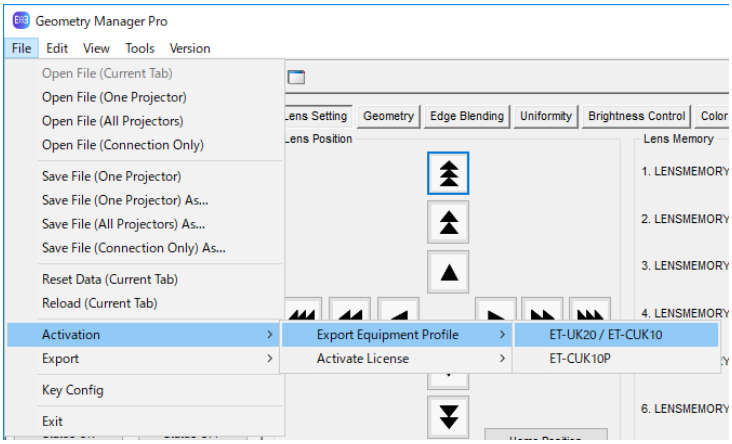
The key code is indicated on the key code label of the upgrade kit (ET-UK20) or the Auto Screen Adjustment upgrade kit (ET-CUK10).

2 Start the software application, and display the main screen.

☞ “Adjustment and Settings – Main screen” (page 37)

3 On the [File] menu, select [Activation] - [Export Equipment Profile] - [ET-UK20/ET-CUK10].

- All the projectors to which the upgrade kit (ET-UK20) or the Auto Screen Adjustment upgrade kit (ET-CUK10) is not applied will be targets for operation.
- All connected projectors will be displayed in the common operation area. However, the operation cannot be performed while two or more of these projectors are selected.
- In the common operation area, an asterisk (*) appears to the left of projector names for which the upgrade kit (ET-UK20) has not been applied. You can check whether the Auto Screen Adjustment upgrade kit (ET-CUK10) is applied when using the Auto Screen Adjustment function.

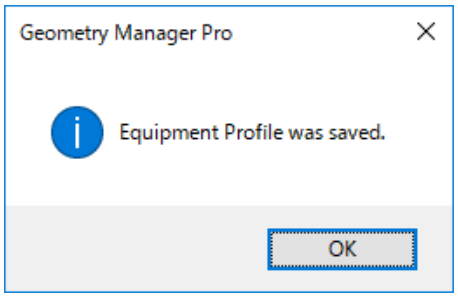


The file save screen is displayed.

4 **Specify the save destination, name the file, and save.**

- The default file name is “SERIAL.LST.”

When the confirmation screen for saving the file appears, click [OK].



5 **Start the web browser, and log in to PASS on the following website.**

https://panasonic.net/cns/projector/pass/

6 **Click the activation button in the side menu of the top page, and follow the on-screen instructions to perform key code registration, etc.**

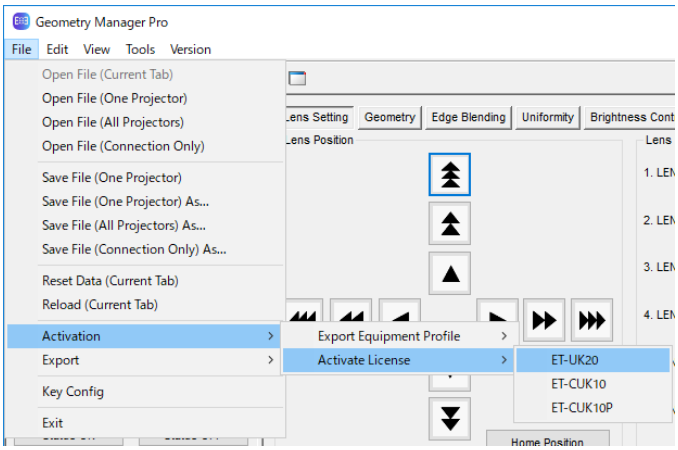
Register the key code readied in step 1 and the file (default file name: SERIAL.LST) saved in step 4 to PASS to acquire the activation code file (default file name: ACTIVE.LST).

- The activation codes for the upgrade kit (ET-UK20) and the Auto Screen Adjustment upgrade kit (ET-CUK10) must be acquired separately.

7 **Close the web browser.**

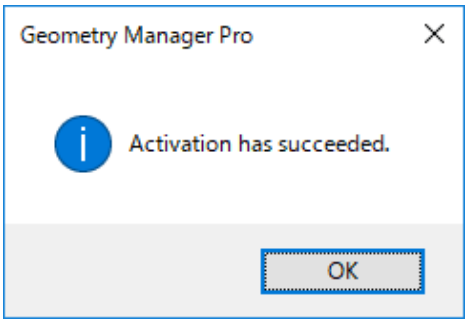
8 **On the [File] menu, select [Activation] - [Activate License] - [ET-UK20] or [ET-CUK10].**

The file selection screen is displayed.



9 **Select the activation code file (default file name: ACTIVE.LST) acquired in step 6.**

When activation is complete and the confirmation screen appears, click [OK].



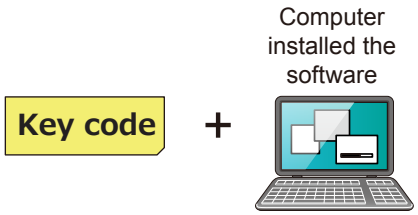
Perform the computer activation

This section describes computer activation.

■ Method 1: Activation directly from this software

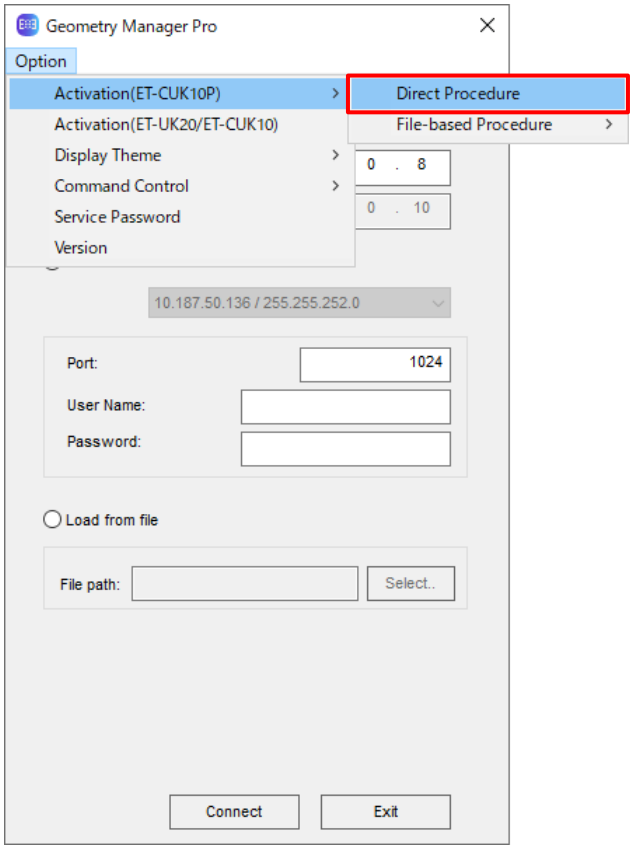
1 **Have the keycode ready.**

The keycode is indicated on the keycode label of the Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P).



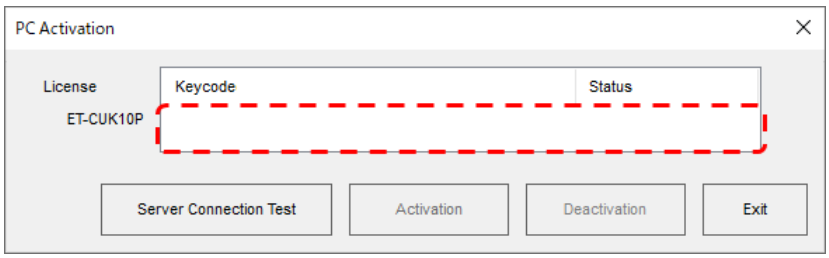
2 **Start this software, and display the Connection Setting screen.**

3 **Select [Activation(ET-CUK10P)] – [Direct Procedure] from the [Option] menu of the Connection Setting screen.**



The [PC Activation] screen appears.

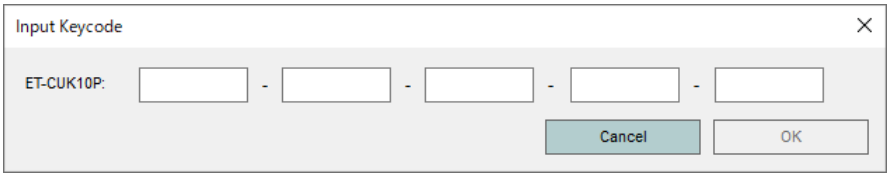
4 **Double-click the area displaying the keycode or status in the [PC Activation] screen.**



The [Input Keycode] screen appears.

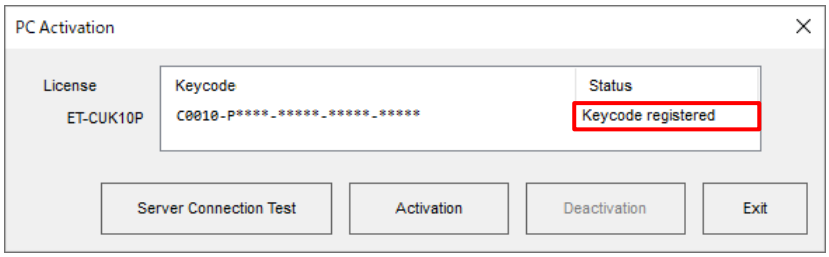
5 **Enter the keycode and click the [OK] button in the [Input Keycode] screen.**

[OK] is enabled when you enter all 25 digits of the keycode.

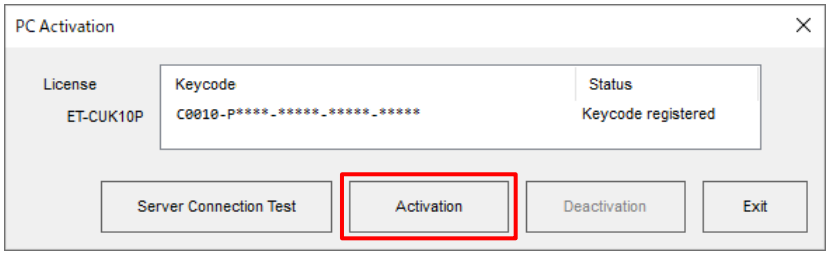


If you click [Cancel], all digits of the input keycode will be discarded.

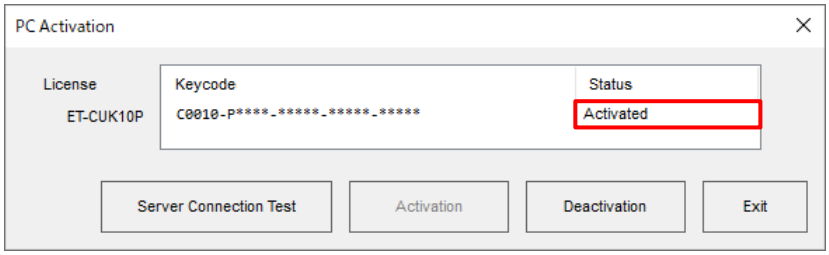
6 **Check that [Status] has become “Keycode registered”.**



7 **Click the [Activation] button.**



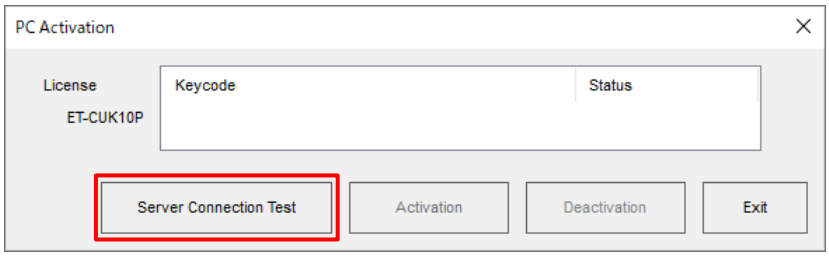
8 **Activation is complete when [Status] becomes “Activated”.**



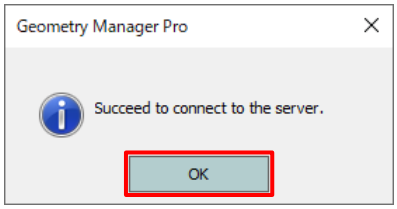
Exit the software by clicking [Exit].

Note

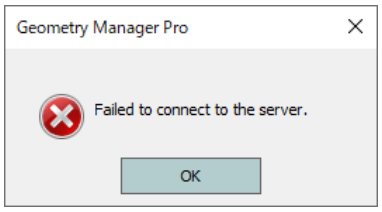
- To test connecting with the server, click [Server Connection Test].



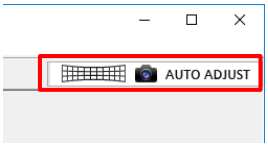
If the connection test is successful, the following screen appears. Click [OK] to close the screen.



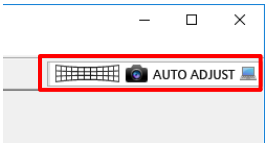
If the connection test failed, the following error message appears. In this case, revise the Internet settings of the computer and then perform the connection test again.



- When computer activation is completed, the [AUTO ADJUST] button at the top right of the main screen changes as shown below.



Before activation

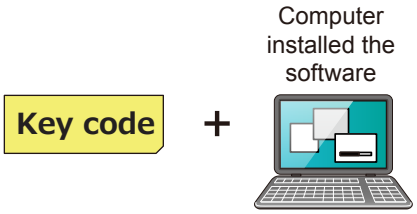


After activation

■ Method 2: Activation via a website

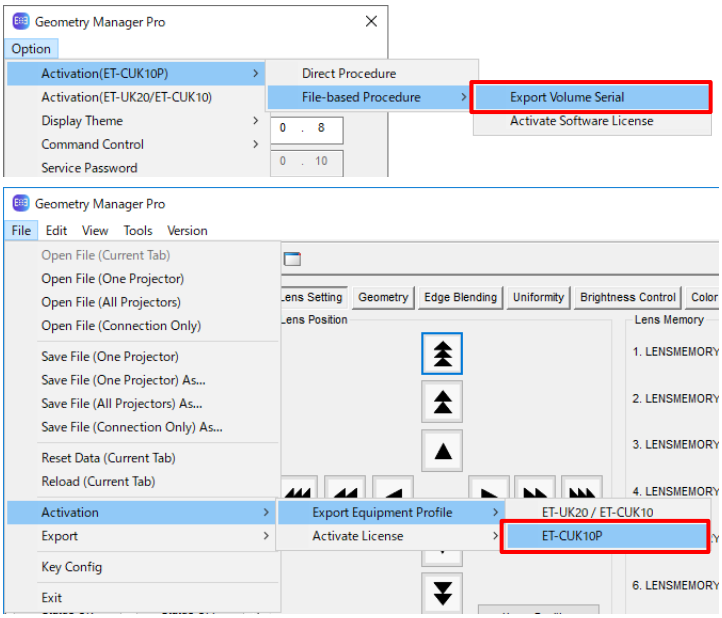
1 Have the key code ready.

The key code is indicated on the key code label of the Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P).



2 Start the software application, and display the Connection Setting screen or the main screen.

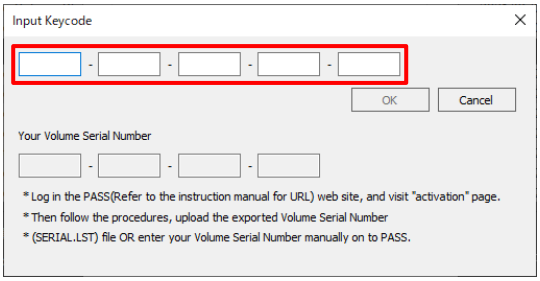
3 Select [Activation(ET-CUK10P)] - [File-based Procedure] - [Export Volume Serial] from the [Option] menu of the Connection Setting screen or [Activation] - [Export Equipment Profile] - [ET-CUK10P] from the [File] menu of the main screen.



The [Input Keycode] screen appears.

4 In the [Input Keycode] screen, enter the key code indicated on the key code label.

The key code consists of 25 single-byte alphanumeric characters. All letters should be uppercase, and 5 characters should be entered in each box.

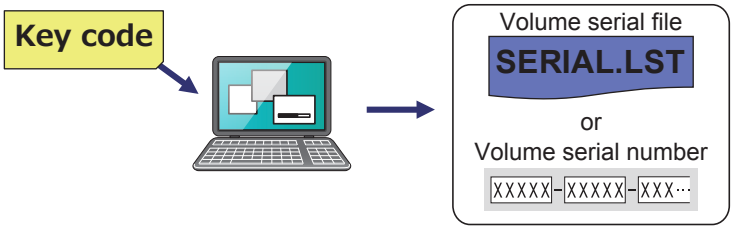


Click [OK] to display the file save screen.

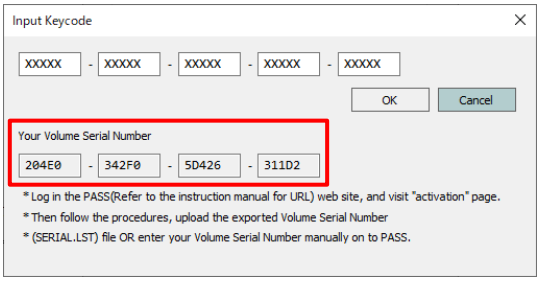
Note

If key code input fails 10 times in a row, you will not be able to enter the key code for 24 hours.
If that happens, wait until input becomes possible and then try again.

5 **Save the Volume Serial file ("SERIAL.LST") to any location.**



You can change the file name as desired, but do not change the extension (.LST). To return to the [Input Keycode] screen, click [Cancel] in the file save screen. When saving of the file is completed, the [Input Keycode] screen closes.
Once the file has been saved, the volume serial number (20 single-byte alphanumeric characters) appears in the [Input Keycode] screen.
If you will enter this volume serial number manually to download an activation code file later in this procedure, write down this code and take care not to lose it before activation is completed.

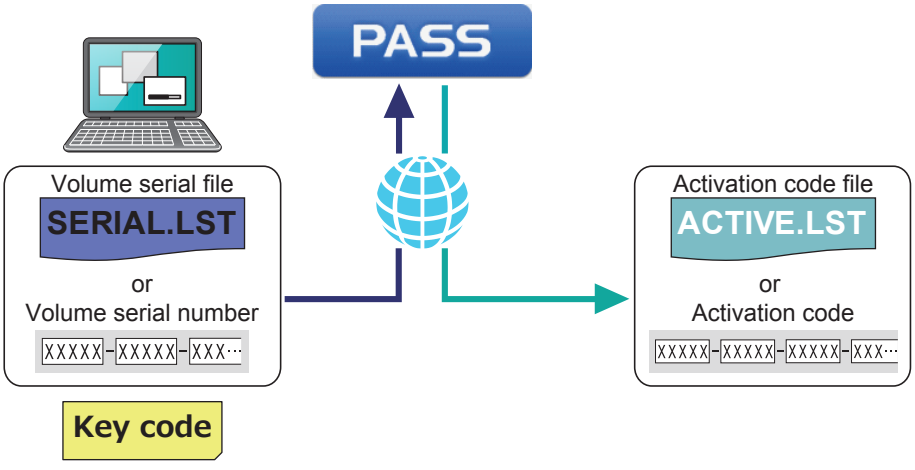


6 **Start the web browser, log in to PASS on the following website, and click the [Activation] button from the side menu of the member top page.**

https://panasonic.net/cns/projector/pass/

7 **Follow the on-screen instructions to download the activation code file.**

Download the activation code file ("ACTIVE.LST") using one of the following two methods.



When using a volume serial file (default file name: SERIAL.LST)

Follow the on-screen instructions to upload the volume serial file to PASS, enter the key code, and download the activation code file ("ACTIVE.LST") to any location.

- You can change the activation code file name as desired, but do not change the extension (.LST).
- The activation code (30 single-byte alphanumeric characters) is displayed after the activation code file is downloaded, but it is not used when using the activation code file ("ACTIVE.LST") to perform activation later in this procedure. If you will enter the activation code manually to perform activation, write down this code and take care not to lose it before activation is completed.

When entering the volume serial number manually

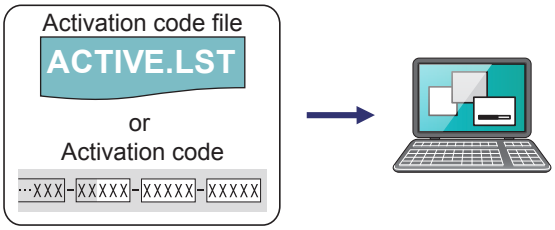
Follow the on-screen instructions to register the volume serial number to PASS, enter the key code, and download the activation code file ("ACTIVE.LST") to any location.

- The volume serial number consists of 20 single-byte alphanumeric characters. All letters should be uppercase, and 5 characters should be entered in each box.
- You can change the activation code file name as desired, but do not change the extension (.LST).
- The activation code (30 single-byte alphanumeric characters) is displayed after the activation code file is downloaded, but it is not used when using the activation code file to perform activation later in this procedure. If you will enter the activation code manually to perform activation, write down this code and take care not to lose it before activation is completed.

8 Close the web browser.

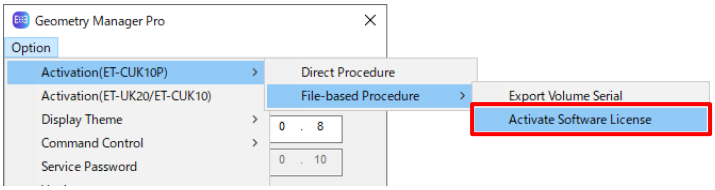
9 Perform activation.

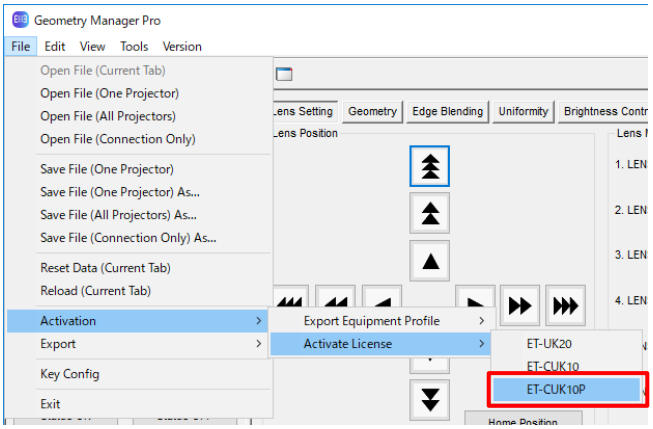
Perform activation using one of the following two methods.

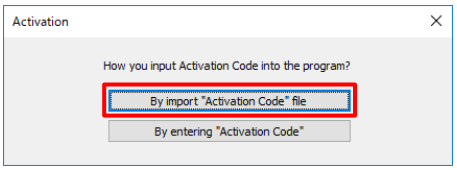


When using the activation code file (default file name: ACTIVE.LST)

1) Select [Activation(ET-CUK10P)] - [File-based Procedure] - [Activate Software License] from the [Option] menu of the Connection Setting screen or [Activation] - [Activate License] - [ET-CUK10P] from the [File] menu of the main screen and then click the [By import "Activation Code" file] button.



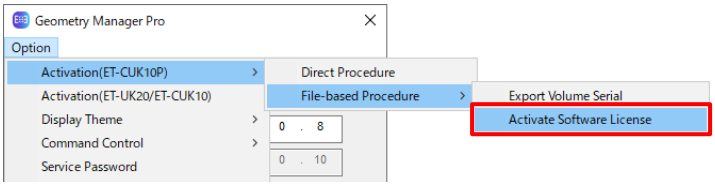


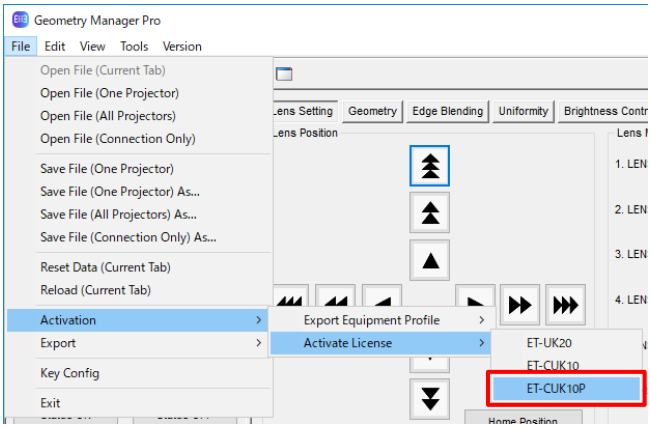


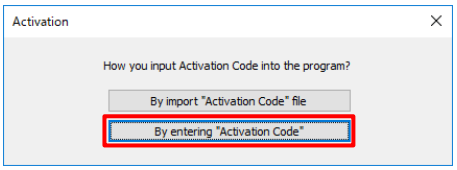
2) Select the activation code file (default file name: ACTIVE.LST) downloaded from PASS.

When entering the activation code manually

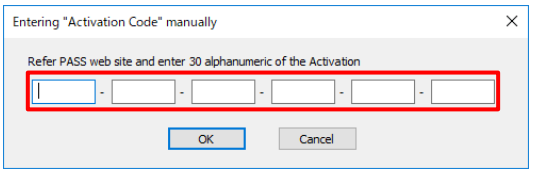
1) Select [Activation(ET-CUK10P)] - [File-based Procedure] - [Activate Software License] from the [Option] menu of the Connection Setting screen or [Activation] - [Activate License] - [ET-CUK10P] from the [File] menu of the main screen and then click the [By entering "Activation Code"] button.







2) After downloading the activation code file, enter the displayed activation code.
   - The activation code consists of 30 single-byte alphanumeric characters. All letters should be capitalized, and 5 characters should be entered for each box.

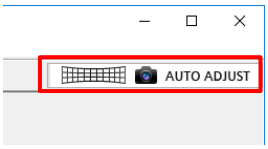


10 When activation is completed, the activation code is registered to the computer.

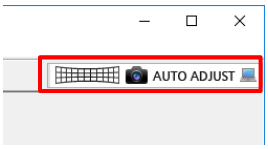
When the confirmation screen appears, click [OK].

Note

- If activation failed, check the following again.
  - The key code input in the [Input Keycode] screen in step 4 and the key code input when uploading the volume serial file (default file name: SERIAL.LST) to PASS or registering the volume serial number to PASS are different.
  - The volume serial file or the volume serial number created in step 5 and the volume serial file uploaded to PASS when generating the activation code or the volume serial number entered when registering to PASS are different.
- When computer activation is completed, the [AUTO ADJUST] button at the top right of the main screen changes as shown below.



Before activation



After activation

Perform the computer deactivation

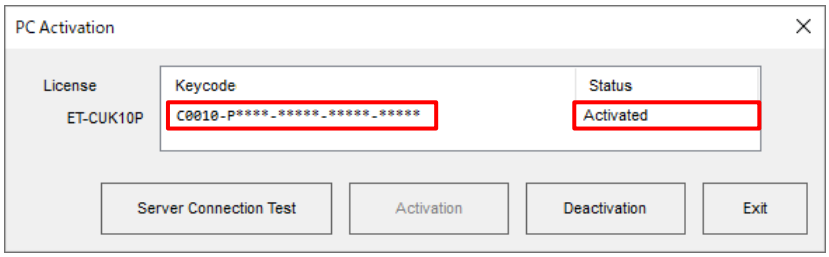
Deactivation is possible when computer activation was performed directly from this software (page 23). Deactivation enables the keycode to be used for activation on another computer.

1 **Start this software, and display the Connection Setting screen.**

2 **Select [Activation(ET-CUK10P)] – [Direct Procedure] from the [Option] menu of the Connection Setting screen.**

The [PC Activation] screen appears.

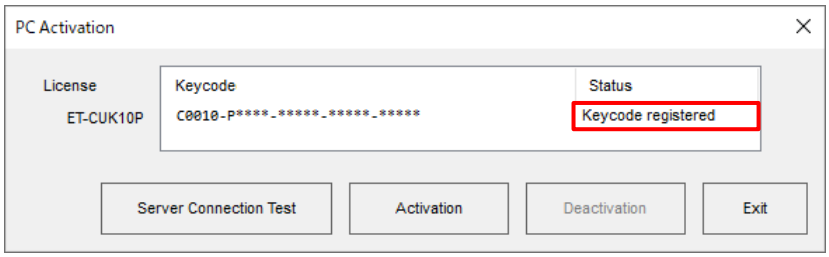
3 **Check that the keycode is already entered and [Status] is “Activated” in the [PC Activation] screen.**



4 **Click the [Deactivation] button.**

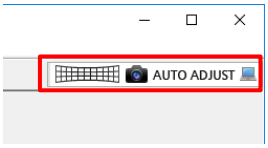
A confirmation message appears. Click [OK] to perform deactivation. Click [Cancel] to not perform deactivation.

5 **Deactivation is complete when [Status] becomes "Keycode Registered".**

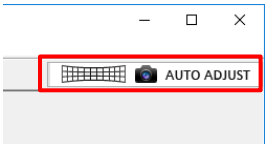


Note

- When computer deactivation is completed, the [AUTO ADJUST] button at the top right of the main screen changes as shown below.



Before deactivation



After deactivation

Functions which are expanded as a result of activation

Listed below are the functions which are expanded when the activation process has been completed.

Note

Some projectors will be in the state with the functions enabled or functions expanded without having to activate the upgrade kit (ET-UK20) and Auto Screen Adjustment upgrade kit (ET-CUK10).

■ Upgrade kit (ET-UK20)

Function			Activation not completed	Activation completed
Grid pattern	When the resolution of the projector is 1920 x 1200 dots or 3840 x 2400 dots		2×2 to 11×11	2×2 to 41×26
	When the resolution of the projector is 1400x1050 dots		2×2 to 11×11	2×2 to 29×22
Geometry Correction	Adjustment ranges	Vertical keystone correction	±40°	±45°
		Horizontal keystone correction	±15°	±40°
		Vertical arcs	±50	±100
		Horizontal arcs	±50	±100
		Pincushion	±50	±100
	Rotational correction		–	√
	Flip Vertical Flip Horizontal		–	√
Uniformity	Flexible Correction		–	√
	Flip Vertical Flip Horizontal		–	√
Masking			–	√

√ : Can be used.
– : Cannot be used.

■ Auto Screen Adjustment upgrade kit (ET-CUK10) / Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P)

This allows simple automatic adjustment of geometry correction, edge blending, color, and brightness according to the shape of the screen through use of a camera.

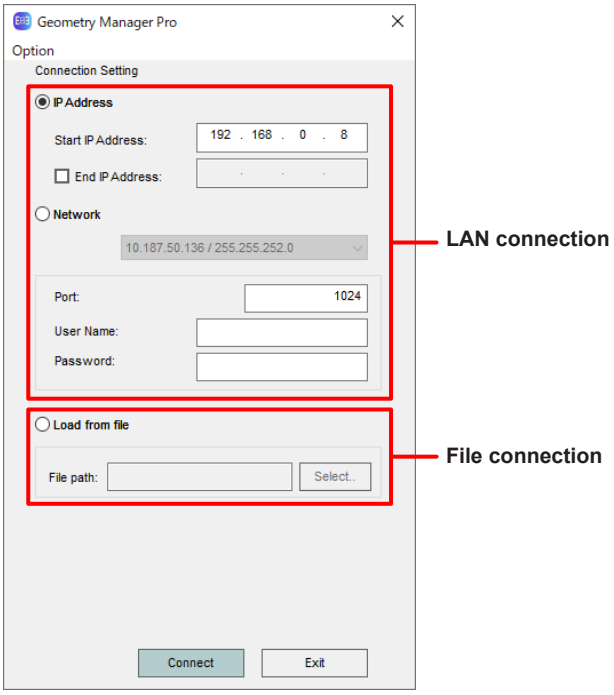
Note

- Both “Geometry Manager Pro” and the “Auto Screen Adjustment plug-in software” must be installed to use the Auto Screen Adjustment function.
- To use the Auto Screen Adjustment function, prepare a camera separately. ☞ “Camera connection” (page 115)

Starting and Exiting the Application

Starting the application

Double-click the shortcut icon on the desktop.
When the application starts, the connection settings screen appears.



Select [IP Address] or [Network] to use a LAN connection for the projector and computer, and select [Load from file] to connect by loading a saved file.

The following items can be selected from the [Option] menu at the top left of the connection settings screen.

Activation (ET-CUK10P)

This performs Auto Screen Adjustment upgrade kit (PC) activation.

Direct Procedure

This performs the activation procedure directly from this software in an environment where a computer with this software installed can connect to the Internet.

File-based Procedure

This performs the activation procedure via file creation, processing using a Web browser, etc.

Export Volume Serial

This creates a volume serial file (file registered to PASS).
This file is required to acquire the activation code file.
☞ “Activation” (page 12)

Activate Software License

This performs computer activation. An activation code file or activation code is required.
☞ “Activation” (page 12)

Activation (ET-UK20/ET-CUK10)

This performs upgrade kit activation.
☞ “Activation” (page 12)

Display Theme

This switches the theme (color scheme) of this software.
You can select from [Dark Gray] and [Light Gray].

Command Control

Control command data set in the Command Control screen (registered commands and registered scripts) can be saved to a file or read from a file.

☞ “Projector Control” (page 111)

Import Commands

This reads control command data from a file.

Export Commands

This saves control command data to a file.

Service Password

This menu is used to support maintenance. It is not normally used.

Version

This is where the application’s version information can be checked.

■ LAN connection

Select the search method for the projector to be connected, and configure the following settings.

IP Address

Select this to search by specifying the IP address of the projector to be connected.

Start IP Address:

Input the IP address of the projector to be connected to the computer. When searching for a connected projector, enter an IP address to start searching.

End IP Address:

When searching for a connected projector, select the check box and enter an IP address to end searching.

Network

Select this to search for a projector within the same network as your computer. The IP address and subnet mask of your computer are displayed in the list.

Port

Set the number of port on the computer for connecting with the projector.

User Name

Input the user name used for WEB control of the connected projector.

Password

Input the password used for WEB control of the connected projector.

Note

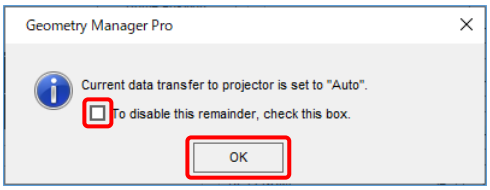
- Specify the same network address for the Start IP Address and End IP Address. If the search range is too wide, an error will occur when you start the search.
- In Network, multiple IP addresses and subnet masks are displayed in the list if your computer has multiple network interfaces. Select the address that is connected to the same network as the projector to be connected from the list.
- Enter the user name and password of the account with administrator privileges for the projector to be connected.

When not searching for a connected projector, click [Connect] after configuring the settings to display the data transfer method confirmation screen. Click the [OK] button on the screen to display the main screen.

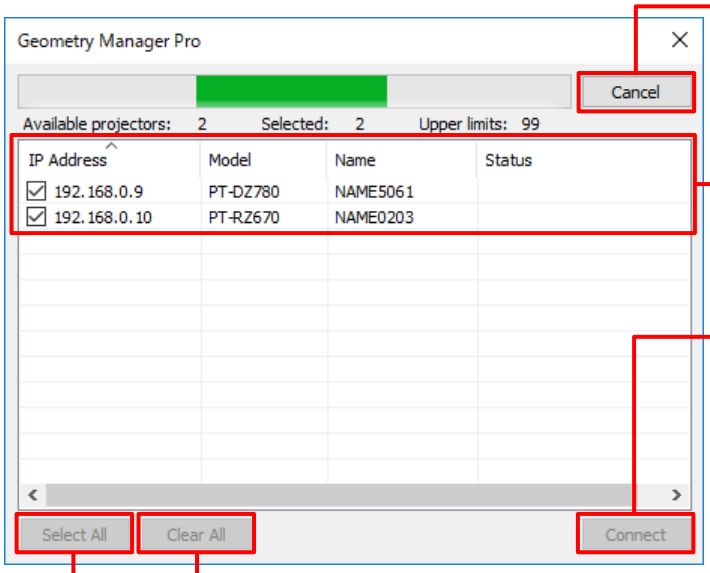
☞ “Adjustment and Settings – Main screen” (page 37)

Note

- If the check box is selected on the data transfer method confirmation screen when you click the [OK] button, the confirmation screen will not be displayed subsequently.



When searching for a connected projector, click [Search] after configuring the settings to start the search according to the settings. The projector search screen is displayed while the search is in progress.



Cancel
Cancel the search.
When a search is canceled, projectors that have been detected up to that point will be displayed.

Connected projector list
Displays a list of projectors that were detected via the search.

Connect
Connect to the selected projectors, and display the data transfer method confirmation screen. Click the [OK] button on the screen to display the main screen. ☞ "Adjustment and Settings – Main screen" (page 37)

Clear All
Clear selection of all detected projectors.

Select All
Select all detected projectors.

When [Exit] is clicked, the application is exited without establishing a connection.

■ File connection

Select [Load from file] and configure the following settings.

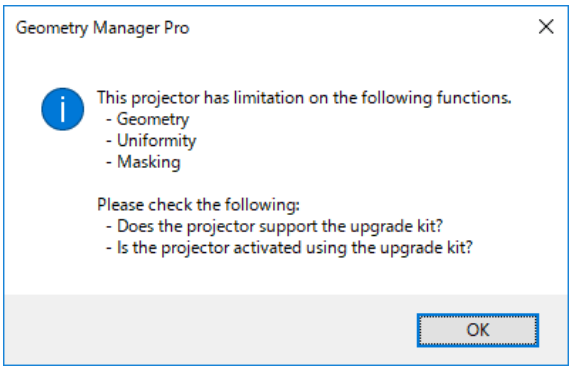
File path

Specify a file (with .prjc or .prjs extension) saved in the past.
Click [Select] to open the file selection screen.

Click [Connect] after configuring the settings to display the data transfer method confirmation screen (page 34). Click the [OK] button on the screen to display the main screen. ☞ “Adjustment and Settings – Main screen” (page 37)
When [Exit] is clicked, the application is exited without establishing a connection.

Note

The following screen appears when you connect to a projector for which the upgrade kit (ET-UK20) has not been applied.



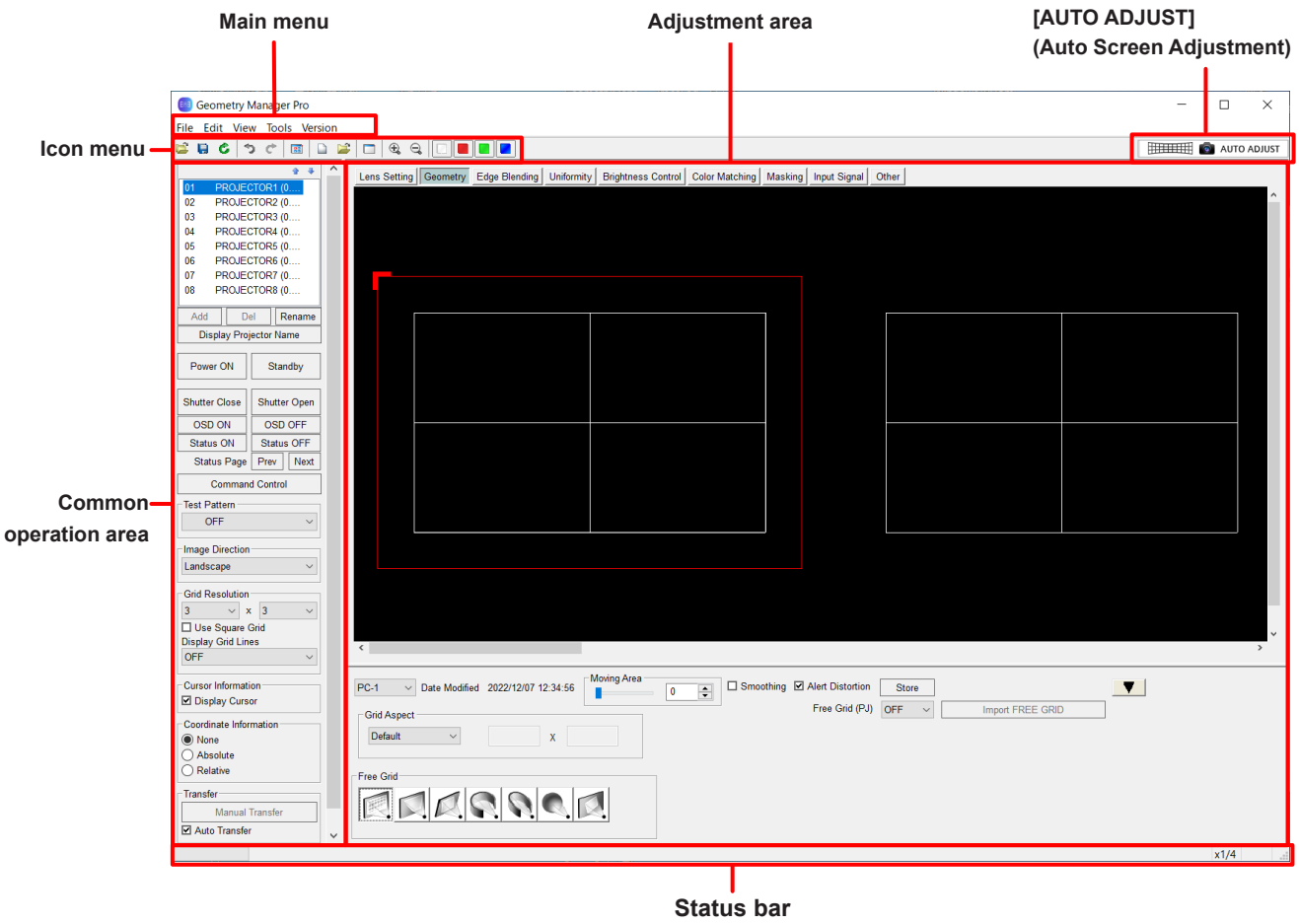
Exiting the application

To exit the connection main screen, either select [File] and then [Exit] or click the ☒ button at the top right of the window.
To exit the connection settings screen, either click the [Exit] button or click the ☒ button at the top right of the window.

Adjustment and Settings

Main screen

The main screen consists of the following five general areas and the [AUTO ADJUST] (Auto Screen Adjustment) button.



Note

- When using this application, keep the main power of the projector in the “on” setting.
  The [Power ON] operation will be enabled even when the projector is in the standby state. However, if the standby mode is set to [ECO] on a projector for which standby mode can be set, all operations including [Power ON] will be disabled. When using this application and performing the [Power ON] operation, set the projector’s standby mode to [Normal]. Operations other than [Power ON] are not guaranteed when the projector is in the standby state.
- If the projector settings have been changed using a remote control, for instance, rather than the software application, the software application displays and projector settings may not match.

Adjustment area

You can click the tabs in the adjustment area to switch between screens and perform various adjustments and operations. The modes in which these adjustments and operations are performed are called “editing modes.”

Main menu

■ File submenu

Open File (Current Tab)

This loads only the setting data of the current editing mode from a setting file (with .prj extension) saved on the computer.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

Open File (One Projector)

This loads all the editing mode settings from the setting file (with .prj extension) saved on the computer into the selected projector.

When this menu item is selected, the loaded settings are reflected in the target projector even if Auto Transfer (at the bottom of the common operation area) has not been checked.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

Note

When the setting file is loaded, the settings may not be reflected correctly if the selected input signal is not the same as the one when the setting file was saved.

Open File (All Projectors)

This loads a file saved with [Save File (All Projectors) As...].

When this item is selected, the loaded settings are reflected in all the target projectors that are connected even if Auto Transfer (at the bottom of the common operation area) is not checked.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

Note

When the file is loaded, an error message is displayed if the target projector is not connected to the network. When the connection of the target projector to the network is recognized, the connection is established and the loaded settings are reflected automatically.

Open File (Connection Only)

This loads a setting file (with .prjc or .prjs extension) saved to the computer and reflects the status of the connection with the saved projector.

Note

- When the file is loaded, an error message will be displayed if the target projector is not connected to the network, but a connection will be established automatically when the computer recognizes that the target projector is connected to the network.
- Even if a setting file (with .prjs extension) is selected, the settings of the projector target for connection are not reflected.

Save File (One Projector)

This saves the settings being edited, overwriting the previous settings in the current setting file (with .prj extension). When the file is saved for the first time, a message appears prompting the user to provide a filename.

Save File (One Projector) As...

This saves the settings now being edited in a file under the filename (with .prj extension) provided.

Save File (All Projectors) As...

This saves the setting information of all the currently connected projectors as a single All Project File (with .prjs extension) on the computer.

The layout information, IP addresses, user names, and passwords of the projectors are also encrypted and saved in the All Project File.

Save File (Connection Only) As...

This saves the connection information of all the currently connected projectors as a single file (with .prjc extension) on the computer.

The IP addresses, user names, and passwords of the projectors are also encrypted and saved.

Reset Data (Current Tab)

This sets the current editing mode settings to the initial statuses.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

Reload (Current Tab)

This cancels the settings currently being edited using the application, and loads the same settings again from the projector.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

Activation

Export Equipment Profile (ET-UK20 / ET-CUK10 / ET-CUK10P)

Creates a file to be registered in PASS. This file is required to acquire the activation code file.

☞ “Activation” (page 12)

Activate License (ET-UK20 / ET-CUK10 / ET-CUK10P)

Select [ET-UK20], [ET-CUK10], or [ET-CUK10P] and then perform activation.

☞ “Functions which are expanded as a result of activation” (page 32)

- The activation code file is required.
  ☞ “Activation” (page 12)
- If the “Auto Screen Adjustment plug-in software” is not installed, [ET-CUK10] or [ET-CUK10P] cannot be selected.
  ☞ “Installing the “Auto Screen Adjustment plug-in software”” (page 8)

Export

Multi Monitoring and Control Software

This saves the data in the file format (with .ugk extension) used for the “Multi Monitoring & Control Software”.

The file is for registering the data of the projectors already registered in the software application in the “Multi Monitoring & Control Software” for monitoring and control purposes.

For details, refer to the operation manual of the “Multi Monitoring & Control Software”.

Key Config

This configures the key settings for using a gamepad to operate some functions of this software.

☞ “Operation by Gamepad” (page 149)

Exit

Exits the software.

- When this item is selected, a confirmation message appears. Proceed with operation as instructed in the message.

■ Edit submenu

Undo

This discards the software application and projector settings currently being edited.
It returns these settings to the status before the setting data is sent.

Redo

This returns the settings to the ones before the Undo operation is performed.

Note

- Undo and Redo can be used up to 50 times during a single setting process (for each editing mode).
- The Undo and Redo logs are cleared if you switch to another editing mode or projector.

The following Edit submenu items are enabled only in certain editing modes. For details, refer to the respective reference pages.

Lock

☞ “Adjustment and Settings − Geometry Correction” (page 57)

Unlock

☞ “Adjustment and Settings − Geometry Correction” (page 57)

Free

☞ “Adjustment and Settings − Geometry Correction” (page 57)

Reset

☞ “Adjustment and Settings − Geometry Correction” (page 57), “Adjustment and Settings − Uniformity” (page 79), “Adjustment and Settings − Masking” (page 91)

Flip Vertical

☞ “Adjustment and Settings − Geometry Correction” (page 57), “Adjustment and Settings − Uniformity” (page 79), “Adjustment and Settings − Masking” (page 91)

Flip Horizontal

☞ “Adjustment and Settings − Geometry Correction” (page 57), “Adjustment and Settings − Uniformity” (page 79), “Adjustment and Settings − Masking” (page 91)

Area Select

☞ “Adjustment and Settings − Uniformity” (page 79)

Point Select

☞ “Adjustment and Settings − Uniformity” (page 79)

■ View submenu

Tool Bar, Status Bar, Sub Window, Layout Window

Enter a check mark, and select whether the items are to be displayed.
In the initial status, “Tool Bar” and “Status Bar” are displayed.

Display Theme

Dark Gray / Light Gray

These switch the theme (color scheme) of this software.

Live View

This displays live view images.
☞ “Live View” (page 144)

Auto Transfer

When a check mark is entered for this and then settings are changed, the changed settings are reflected in the projector as soon as they are changed.
The state when this software is exited will continue when the software starts next time.

- Entering a check mark causes a check mark to appear in ☐ Auto Transfer in the lower left of the common operation area.

Image Direction

Landscape / Landscape (Flipped) / Portrait (Clockwise) / Portrait (Counterclockwise)

Switch this to match the direction of images projected by the projector and the display in this software.
☞ “Adjustment and Settings - Geometry Correction - Geometry screen” (page 57)
☞ “Adjustment and Settings - Edge Blending - Edge Blending screen” (page 71)
☞ “Adjustment and Settings - Uniformity - Uniformity screen” (page 80)
☞ “Adjustment and Settings - Masking - Masking screen” (page 92)

Note

- This setting is not linked with the portrait setting of the projector. Configure the portrait setting of the projector separately.
- Set this setting individually for each connected projector.

Line Color

White / Red / Green / Blue

These perform the same operations as the icon menu [White], [Red], [Green] and [Blue] on the Geometry screen.
☞ “Adjustment and Settings - Geometry Correction - Geometry screen” (page 57)

Coordinate Information

None / Absolute / Relative

These select the mode in which the coordinates of the control points are displayed.
☞ “Adjustment and Settings - Main screen - Coordinate Information” (page 49)

Grid Resolution

Use Square Grid / X / Y

These select the mode in which the coordinates of the control points are displayed.
☞ “Adjustment and Settings - Geometry Correction - Geometry screen” (page 57)

Zoom

x1/8 / x1/4 / x1/2 / x1 / x2 / x3 / x4 / x5 / x6 / x7 / x8

The editing area is zoomed in or out.

Masking Marker

Red / Green / Blue / Orange

These select whether to display the control points.
☞ “Adjustment and Settings - Masking - Masking screen” (page 92)

■ Tools submenu

Command Control

This displays the Command Control screen.

☞ “Projector Control” (page 111)

Auto Screen Adjustment

This displays the Auto Screen Adjustment screen.

This performs the same operation as the [AUTO ADJUST[(Auto Screen Adjustment) button.

☞ “[AUTO ADJUST] (Auto Screen Adjustment) button” (page 50)

Note

This cannot be selected if the “Auto Screen Adjustment plug-in software” is not installed.

■ Version submenu

About Geometry...

This displays version information for “Geometry Manager Pro”.

Icon menu

This icon menu is used in all the editing modes.
For details on the icon menu items used in each editing mode, refer to the description of the mode concerned.

Open File (One Projector)

This performs the same operation as [Open File (One Projector)] on the File submenu.

Save File (One Projector)

This performs the same operation as [Save File (One Projector)] on the File submenu.

Reload (Current Tab)

This performs the same operation as [Reload (Current Tab)] on the File submenu.

Undo

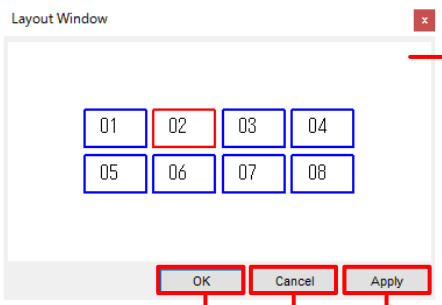
This performs the same operation as [Undo] on the Edit submenu.

Redo

This performs the same operation as [Redo] on the Edit submenu.

Layout Window

Each time this is clicked, the Layout Window screen is switched between displayed and cleared.
On the Layout Window, the positions of the projectors can be changed by means of mouse operations.
When a projector position is moved, the overall layout is automatically corrected based on the projector which was moved.
Main screen operations can be performed even while the Layout Window is displayed.
The Layout Window screen can be displayed also by selecting [Layout Window] on the View submenu.
The Layout Window screen below is an example when eight projectors are connected.



Selection area
The projector layout is displayed.
You can change the active projector by clicking one of the rectangles representing the projectors.
The frame of the selected projector is indicated in red.

Apply
Click to apply the layout displayed in the selection area.
The screen is not closed.

Cancel
Click to close the screen without applying the layout displayed in the selection area.

OK
Click to apply the layout displayed in the selection area and close the screen.

Reset Data (Current Tab)

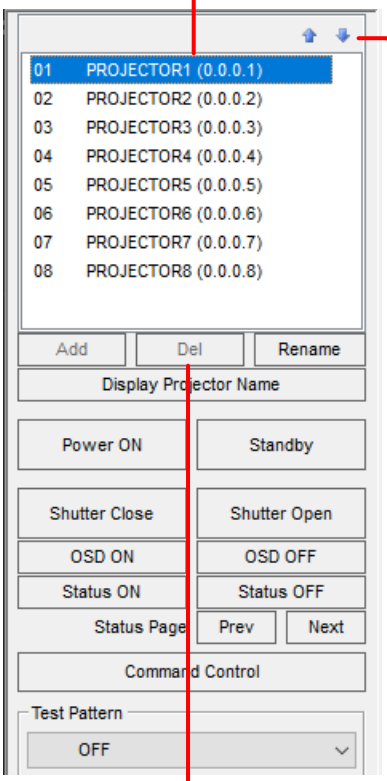
This performs the same operation as [Reset Data (Current Tab)] on the File submenu.

Open File (Current Tab)

This performs the same operation as [Open File (Current Tab)] on the File submenu.

Common operation area

The common operation area houses the operations which can be used in all the editing modes.



Projector list

This list displays the projector numbers, projector names and IP addresses in the sequence in which the projectors were connected.
The projector currently selected is the one whose data is being edited. Any projector on the list can be selected to switch the projector whose data is to be edited.

Note

- Multiple projectors can be selected as targets for operations by holding the Ctrl key while clicking. In that case, the following functions can be operated.
  Power ON/Standby, Shutter Close/Shutter Open, OSD ON/OSD OFF, Status ON/Status OFF, Status Page, Test Pattern, Display Projector Name, Grid Resolution, Display Grid Lines
- When a projector for which the upgrade kit (ET-UK20) has not been applied is connected, an asterisk (*) appears to the left of that projector name. An error message will appear if you connect to this projector and attempt to use the extended functions. ☞ “Activation” (page 12)
- When a projector on the list is selected and then double-clicked, the WEB control screen opens. For details on the WEB control screen, refer to the operating instructions of the projector.
- When the mouse pointer is placed over a projector on the list, a tooltip appears and shows the model number and resolution of that projector.
- If you change the projector authentication information (user name, password, etc.) by WEB control after connecting the projector to this software, you will lose ability to connect to or control the projector using this software.
  In that situation, right-click on the projector in the list, select [Property], open the [Property] screen, and correct the authentication information.
  ☞ “[Property] Screen” (page 45)

/

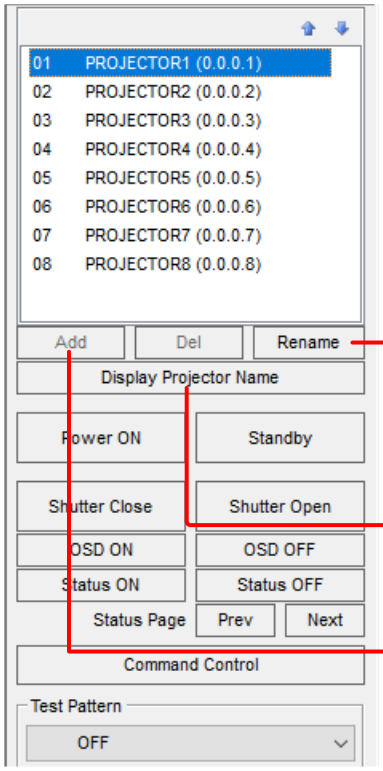
These change the order of the projectors in the list.
Select a projector in the list and then click the up arrow button to move it up one place in the list or click the down arrow button to move it down one place in the list.

Note

- Multiple projectors cannot be moved at the same time.
- When the up arrow button is clicked while the very top projector is selected or when the down arrow button is clicked while the very bottom projector is selected, the projector does not move.
- The results of moving the projectors are reflected in Layout Window.
  ☞ “Layout Window” (page 43)

Del

Click to remove the selected projector from the operating targets.
When all the projectors are removed, the software is exited.

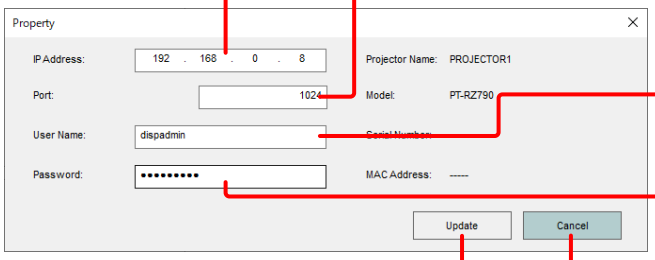


Rename
Click to change the name of the currently selected projector.
A name can consist of a maximum of 12 characters including letters (upper-case), numbers, hyphens and periods.

Display Projector Name
Click to display the name and number of the currently selected projector on the image projected by the projector.

Add
Click to display the LAN connection destination selection screen and add a new projector.
☞ “Adjustment and Settings − Main screen − LAN connection destination selection screen” (page 46)

[Property] Screen



IP Address
Enter the IP address of the projector.

Port
Set the port number to be used for connecting to the projector.

User Name
Enter the user name to be used for connecting to the projector.

Password
Enter the password to be used for connecting to the projector.

Note

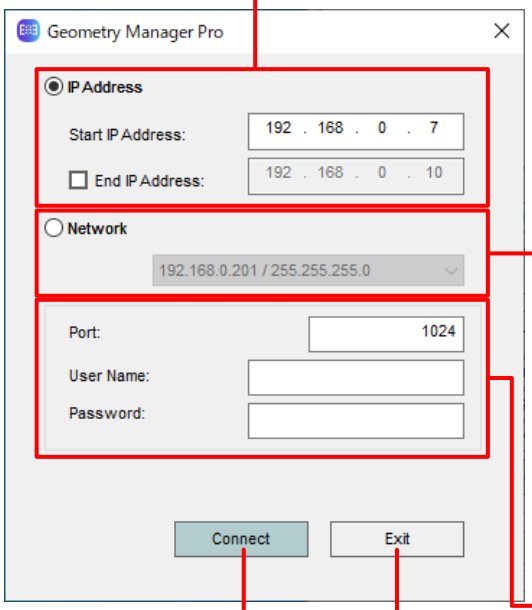
- Enter the user name and password of the account with administrator privileges for the projector to be connected.

Cancel
Discard entered information.

Update
Update and reconnect using the entered information.

LAN connection destination selection screen

When Add is clicked, the LAN connection destination selection screen is displayed.
A projector that is going to be connected now be set.



IP Address
Select this to search by specifying the IP address of the projector to be connected.

Start IP Address:
Input here the IP address of the projector to be connected.
To search for a connected projector, enter an IP address to start searching.

End IP Address:
To search for a connected projector, select the check box and enter an IP address to end searching.

Note

- Specify the same network address for the Start IP Address and End IP Address.
- If the search range is too wide, an error will occur when you start the search.

Network
Select this to search for a projector within the same network as your computer.

Note

- Multiple IP addresses and subnet masks are displayed in the list if your computer has multiple network interfaces. Select the address that is connected to the same network as the projector to be connected from the list.

Port
Set here the number of the port that is to be connected to the projector.

User Name
Input here the user name of the projector to be connected.

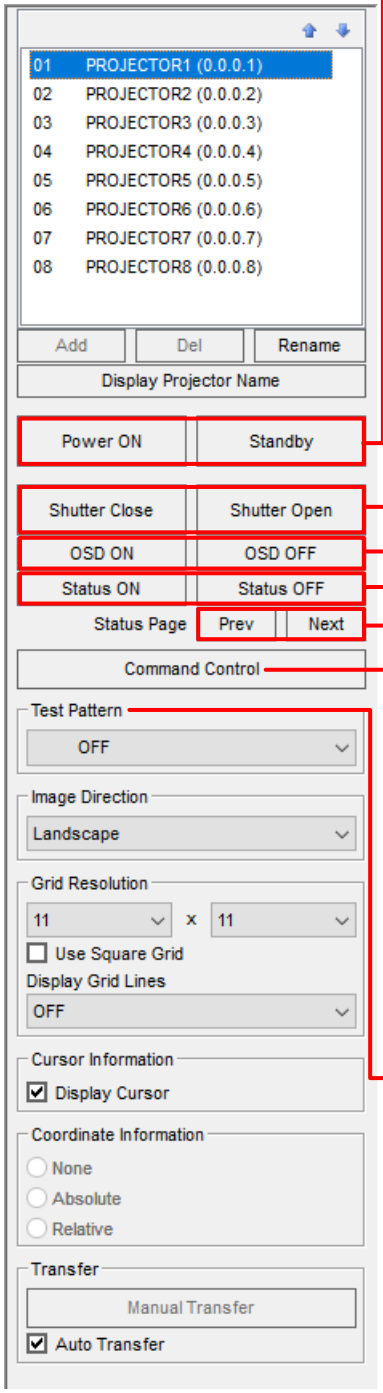
Password
Input here the password of the projector to be connected.

Note

- Enter the user name and password of the account with administrator privileges for the projector to be connected.

Exit
Click to cancel the connection with the projector and close the LAN connection destination selection screen.

Connect / Search
When not searching for a connected projector, connection to the projector will be established according to the entered settings.
When searching for a connected projector, the projector search will start according to the entered settings.
A status screen is displayed while the search is in progress. ☞ "Starting and Exiting the Application − Projetor Search Screen" (page 35)
When the projector is connected successfully, the LAN connection destination selection screen is closed.



Power ON/Standby

Click the left button to set the power of the selected projector to the “On” state or click the right button to set it to the standby state.

The setting is reflected in the projector even when a check mark has not been entered in Auto Transfer.

Note

When the projector is in the standby state, no guarantees are made for any operations except [Power ON].

Shutter Close/Shutter Open

Click the left button to set the shutter of the selected projector to the “On” state or click the right button to set it to the “Off” state.

The setting is reflected in the projector even when a check mark has not been entered in Auto Transfer.

OSD ON/OSD OFF

Click these to select to display (ON) or not display (OFF) the OSD menu on the images of the selected projector.

This operation is reflected in the projector even if a check mark has not been entered for Auto Transfer.

Status ON/Status OFF

Click these to select to display (ON) or not display (OFF) the status (information) on the images of the selected projector.

The setting is reflected in the projector even when a check mark has not been entered in Auto Transfer.

Status Page

Click these to select the previous or next page of the status screen when the status is displayed on the projector’s image.

The setting is reflected in the projector even when a check mark has not been entered in Auto Transfer.

Command Control

Click to display the Command Control screen.

☞ “Projector Control” (page 111)

Test Pattern

Click to switch the image projected from the projector to the test pattern.

A test pattern supported by the selected projector can be selected.

If multiple projectors are selected, a test pattern commonly supported by the selected projectors can be selected.

Default value: OFF

The setting is reflected in the projector even when a check mark has not been entered in Auto Transfer.

Note

A user test pattern can be selected for a model that supports user test patterns. The user test patterns are displayed in the selection options as User1 to User3.

This software does not support registering, deleting, and renaming user test patterns. Perform such operations using, for example, the Web control functions of the projector.

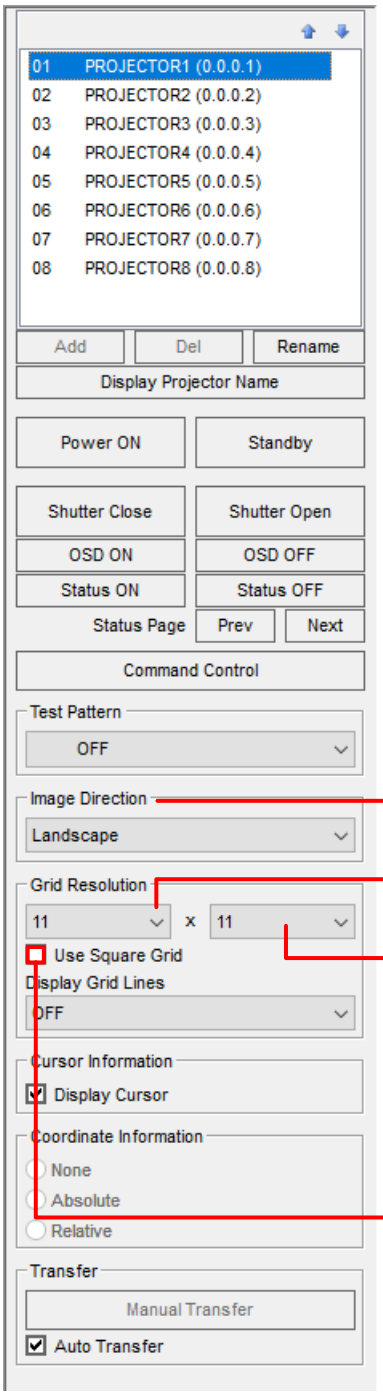


Image Direction

Click to select an option to match the direction of images projected by the projector and the display in this software.

Landscape: Display projected images as they are. Landscape (Flipped): Rotate by 180 degrees (flip top/bottom and left/right). Portrait (Clockwise): Display is rotated clockwise (90 degrees right). Portrait (Counterclockwise): Display is rotated counterclockwise (90 degrees left).

Default value: Landscape

Note

This operation does not change the projector settings.
Set this individually for each connected projector.

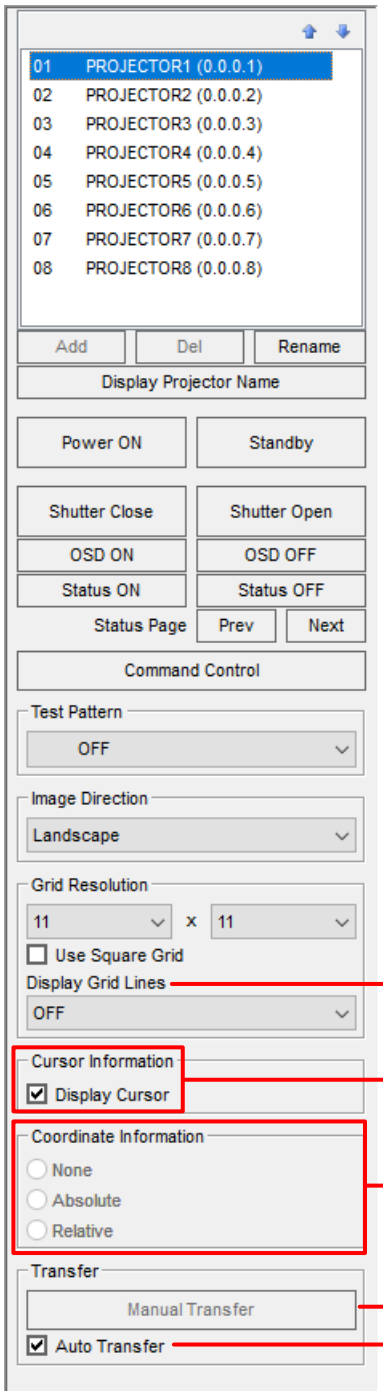
Grid Resolution (horizontal)

The number of grids in the horizontal direction is selected here.

Grid Resolution (vertical)

The number of grids in the vertical direction is selected here.
The number of grids that can be selected differs depending on the model and resolution of the selected projector.
The upper limit for the number of grids differs depending on whether or not the upgrade kit (ET-UK20) has been applied to the selected projector.
☞ “Activation” (page 12)

When a check mark is entered for Use Square Grid, the two grid resolutions (horizontal and vertical) become one, and the button for selecting the combination of the number of grids whose horizontal and vertical intervals are identical is selected. If there is no combination of the number of grids whose horizontal and vertical intervals are identical, this is disabled.
The number of grids that can be selected differs depending on the model and resolution of the selected projector.
The combinations that can be selected differ depending on whether or not the upgrade kit (ET-UK20) has been applied to the selected projector.
☞ “Activation” (page 12)



Display Grid Lines

The color of the grids to be projected is selected here.

OFF, White, Black, Red, Green, Blue, Cyan, Magenta, Yellow

Default value: OFF

The setting is reflected in the projector even when a check mark has not been entered in ☐ Auto Transfer.

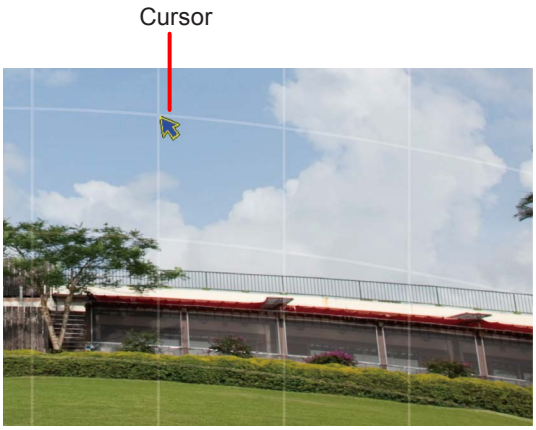
Cursor Information

When a check mark is entered for ☑ Display Cursor , the cursor indicating the position of the control point can be displayed on the projected image.

Note

The cursor appears only at the top left when the control point has been selected using a line or area.

If a multiple number of control points have been selected, the cursor will be displayed only at the control point selected last.



Coordinate Information

The mode in which to display the control point coordinates is selected here when grids have been set in one of the editing modes.

None:	The coordinates are not displayed.
Absolute:	The coordinates with the top left control point used as the origin point are displayed alongside the control points.
Relative:	The coordinates with the initial position of the control point in the selected grid used as the origin point are displayed alongside the control points.

Note

If the grid intervals are narrow, the coordinates may not be displayed even when Absolute or Relative has been selected.

Manual Transfer

When this button is clicked, the edited settings are reflected in the projector.

When a check mark is entered in ☐ Auto Transfer , as soon as a setting is changed, that setting is reflected in the projector.

The state when this software is exited will continue when the software starts next time.

[AUTO ADJUST] (Auto Screen Adjustment) button

This allows automatic adjustment of geometry correction, edge blending, color, and brightness according to the shape of the screen through use of an externally connected camera.
Click the [AUTO ADJUST] button to display the Auto Screen Adjustment screen.
☞ “Auto Screen Adjustment” (page 115)

Note

If you click the [AUTO ADJUST] button while the “Auto Screen Adjustment plug-in software” is not installed, a message indicating that installation of the plug-in software is required will appear. Also, if you click the [AUTO ADJUST] button while the combination of the versions of “Geometric & Setup Management Software” and “Auto Screen Adjustment plug-in software” is inappropriate, an error message will appear. Check the version number of “Auto Screen Adjustment plug-in software” displayed in the error message, and then reinstall “Auto Screen Adjustment plug-in software” so that its version is appropriate.
☞ “Installing the “Auto Screen Adjustment plug-in software”” (page 8)

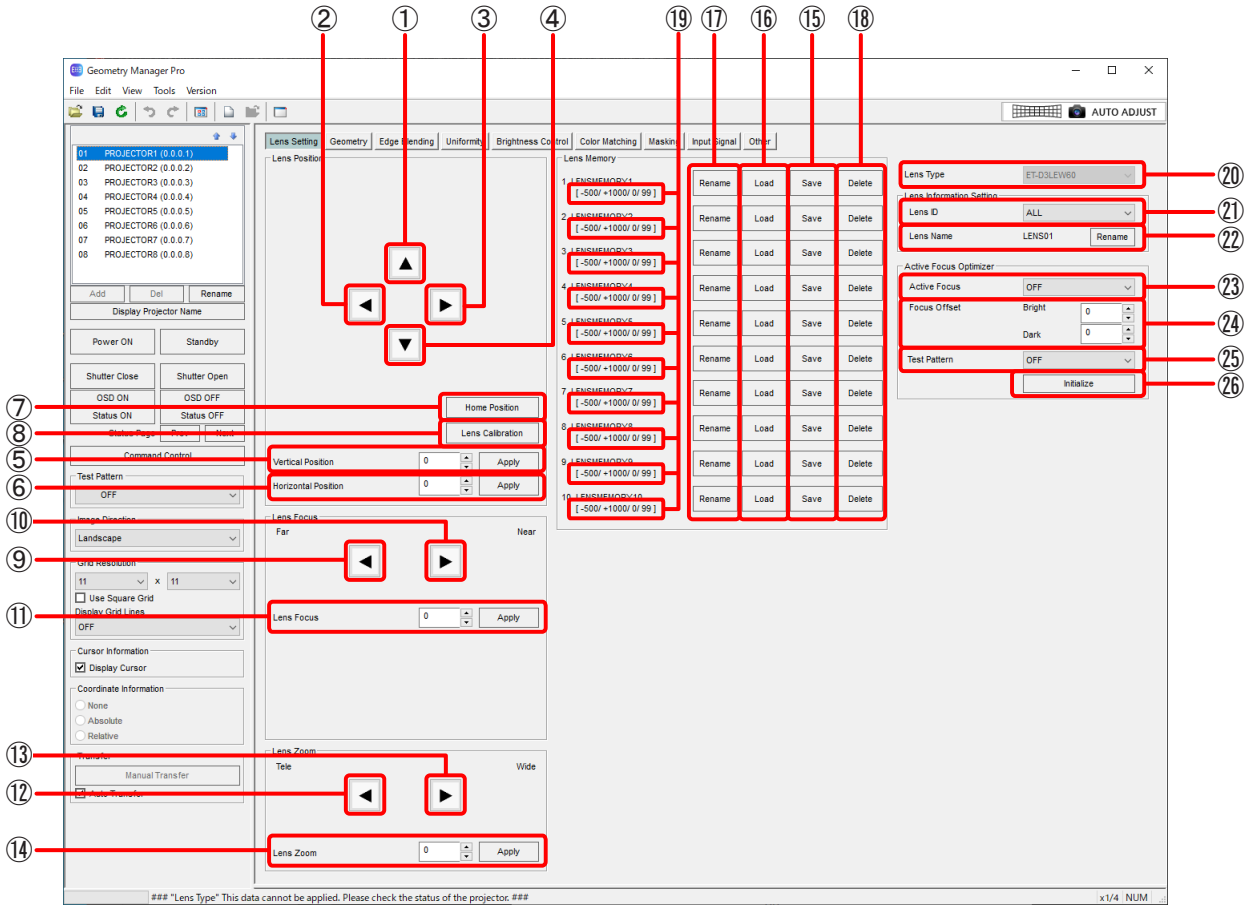
Status bar

This is where the progress made in the data transfer, error messages and expansion ratio of the editing area are displayed.

Lens Settings

The lens settings are selected on this screen. This may be disabled depending on the model.

Lens setting screen



① **Upward**

Use this to move the projected image upward.

When you click and hold the button, the movement speeds up as with operations on the remote control.

There may be three buttons depending on the projector model.

In such cases, the amount of movement increases progressively for each button in the following order; ▲ , ⏫ , ⏫.

② **Leftward**

Use this to move the projected image toward the left.

When you click and hold the button, the movement speeds up as with operations on the remote control.

There may be three buttons depending on the projector model.

In such cases, the amount of movement increases progressively for each button in the following order; ◀ , ⏪ , ⏪.

③ **Rightward**

Use this to move the projected image toward the right.

When you click and hold the button, the movement speeds up as with operations on the remote control.

There may be three buttons depending on the projector model.

In such cases, the amount of movement increases progressively for each button in the following order; ▶ , ⏩ , ⏩.

④ **Downward**

Use this to move the projected image downward.
When you click and hold the button, the movement speeds up as with operations on the remote control.
There may be three buttons depending on the projector model.
In such cases, the amount of movement increases progressively for each button in the following order; ▼ , ⏬ , ⏬.

⑤ **Vertical Position**

Specify the vertical position of the image as a numerical value.
Move to the specified position by clicking the [Apply] button.
This function can be used only for projectors that have this function.

⑥ **Horizontal Position**

Specify the horizontal position of the image as a numerical value.
Move to the specified position by clicking the [Apply] button.
This function can be used only for projectors that have this function.

⑦ **Home Position**

Click to move the lens position to the home position.

⑧ **Lens Calibration**

Click to automatically set the limit to which the lens is to be moved and the home position of the lens.

⑨ **Lens Focus (Far)**

Click these buttons to adjust the focus to “far”.
When you click and hold the button, the movement speeds up as with operations on the remote control.
There may be three buttons depending on the projector model.
In such cases, the further toward the left the button is located, the further the focus will move.

⑩ **Lens Focus (Near)**

Click these buttons to adjust the focus to “near”.
When you click and hold the button, the movement speeds up as with operations on the remote control.
There may be three buttons depending on the projector model.
In such cases, the further toward the right the button is located, the closer the focus will move.

⑪ **Lens Focus**

Specify the focus position as a numerical value.
Move to the specified position by clicking the [Apply] button.
This function can be used only for projectors that have this function.

⑫ **Lens Zoom (Tele)**

Click these buttons to reduce the size of the projected image (zoom out).
When you click and hold the button, the movement speeds up as with operations on the remote control.
There may be three buttons depending on the projector model.
In such cases, the image is reduced in progressively larger steps by clicking the buttons progressively further toward the left.

⑬ **Lens Zoom (Wide)**

Click these buttons to enlarge the size of the projected image (zoom in).
When you click and hold the button, the movement speeds up as with operations on the remote control.
There may be three buttons depending on the projector model.
In such cases, the image is enlarged in progressively larger steps by clicking the buttons progressively further toward the right.

⑭ **Lens Zoom**

Specify the zoom position as a numerical value.
Move to the specified position by clicking the [Apply] button.
This function can be used only for projectors that have this function.

⑮ **Lens Memory Save**

Click these buttons to save the focus position, shift position and zoom position of the adjusted lens in the projector's lens memory.

The number of lens memories available for saving lens settings varies according to model.

Even if a check mark has not been entered for Auto Transfer , the settings are saved in the lens memory when the [Save] button is clicked.

This function can be used only for projectors that have this function.

⑯ **Lens Memory Load**

Click these buttons to select and load the lens memory whose settings are saved in the projector.

The lens will move automatically to the saved focus position, zoom position and shift position.

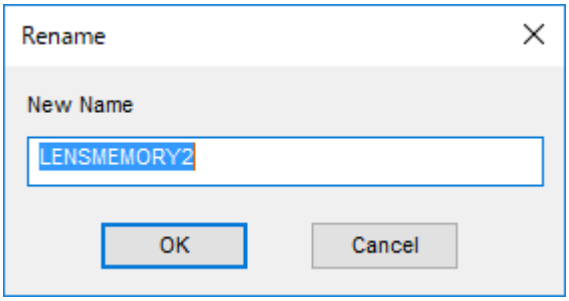
Even if a check mark has not been entered for Auto Transfer , the settings are loaded from the lens memory when the [Load] button is clicked.

This function can be used only for projectors that have this function.

⑰ **Lens Memory Rename**

Click these buttons to rename the lens memory settings.

When one of the buttons is clicked, the [Rename] screen is displayed.



When a new name is input and the [OK] button is clicked, the [Rename] screen is closed, and the name of the projector's lens memory settings is changed.

A name can consist of a maximum of 16 characters including letters, numbers, hyphens and periods.

If the [Cancel] button is pressed instead, the [Rename] screen is closed without renaming the lens memory settings.

This function can be used only for projectors that have this function.

⑱ **Lens Memory Delete**

Click these buttons to delete the settings saved in the lens memory of the projector.

Even if Auto Transfer Transfer is not checked, the settings are deleted from the lens memory when the [Delete] button is clicked.

This function can be used only for projectors that have this function.

⑲ **Lens Memory Position**

These display the value of each position of the lens memory saved to the projector.

The values are Lens Shift Vertical, Lens Shift Horizontal, Lens Focus, and Lens Zoom in order from the left.

If the corresponding value is not saved, that value will not be displayed.

This function can be used only for projectors that have this function.

⑳ **Lens Type**

Specify the lens part number.

This function can be used only for projectors that have this function.

㉑ **Lens ID**

Specify ALL or a value within the range of 1 to 255 for the ID used for lens identification.

This function can be used only for projectors that have this function.

㉒ **Lens Name**

Specify the lens name.
A name can consist of a maximum of 12 characters including letters, numbers, hyphens, and periods.
This function can be used only for projectors that have this function.

㉓ **Active Focus**

Enable or disable the active focus optimizer function.
This function can be used only for projectors that have this function.

㉔ **Focus Offset**

Set the focus correction amount for when the maximum specified brightness has entered the lens or when little light enters the lens in Bright and Dark, respectively.
This function can be used only for projectors that have this function.

㉕ **Test Pattern**

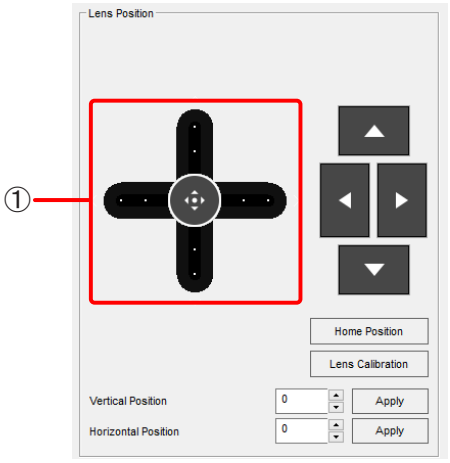
Select the test pattern for adjustment with the active focus optimizer function.
This function can be used only for projectors that have this function.

㉖ **Initialize**

Initialize the Focus Offset value.
This function can be used only for projectors that have this function.

The screen will be as follows for some projectors.

Lens Position



① **Slider Bar**

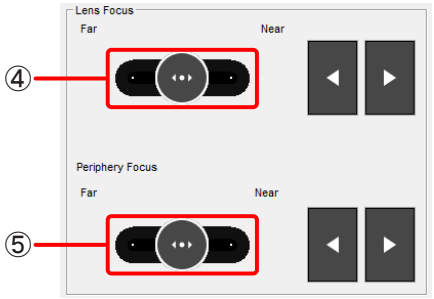
Use this to move the projected image up, down, left, and right.
You can operate the slider bar by dragging the slider button at the center along a rail. Operation is performed at three speeds (low, medium, and high), depending on the distance of the drag position from the center.
This function can be used only for projectors that have this function.

Lens Focus

① **Periphery Focus (Far)**
Adjust the periphery focus of projected images to “far”.
When you click and hold the button, the movement speeds up as with operations on the remote control.
This function can be used only for projectors that have this function.

② **Periphery Focus (Near)**
Adjust the periphery focus of projected images to “near”.
When you click and hold the button, the movement speeds up as with operations on the remote control.
This function can be used only for projectors that have this function.

③ **Active Focus**
Enable or disable the temperature feedback function of the lens focus.



④ **Slider Bar (Lens Focus)**
Adjust the focus of the projected image.
You can operate the slider bar by dragging the slider button at the center along a rail. Operation is performed at two speeds (low and high), depending on the distance of the drag position from the center.
This function can be used only for projectors that have this function.

⑤ **Slider Bar (Periphery Focus)**
Adjust the periphery focus of the projected image.
You can operate the slider bar by dragging the slider button at the center along a rail. Operation is performed at two speeds (low and high), depending on the distance of the drag position from the center.
This function can be used only for projectors that have this function.

Lens Zoom

① **Slider Bar**

Enlarge or reduce the size of the projected image.

You can operate the slider bar by dragging the slider button at the center along a rail. Operation is performed at two speeds (low and high), depending on the distance of the drag position from the center.

This function can be used only for projectors that have this function.

Geometry Correction

Test patterns or grids are projected onto the screen and those parts of the image that look unnatural are corrected.
By adjusting the number of grids or number of control points, the images can be made to look more natural.
Use the mouse to make coarse corrections, and use the cursor keys on the keyboard or input numerical values to make fine corrections.

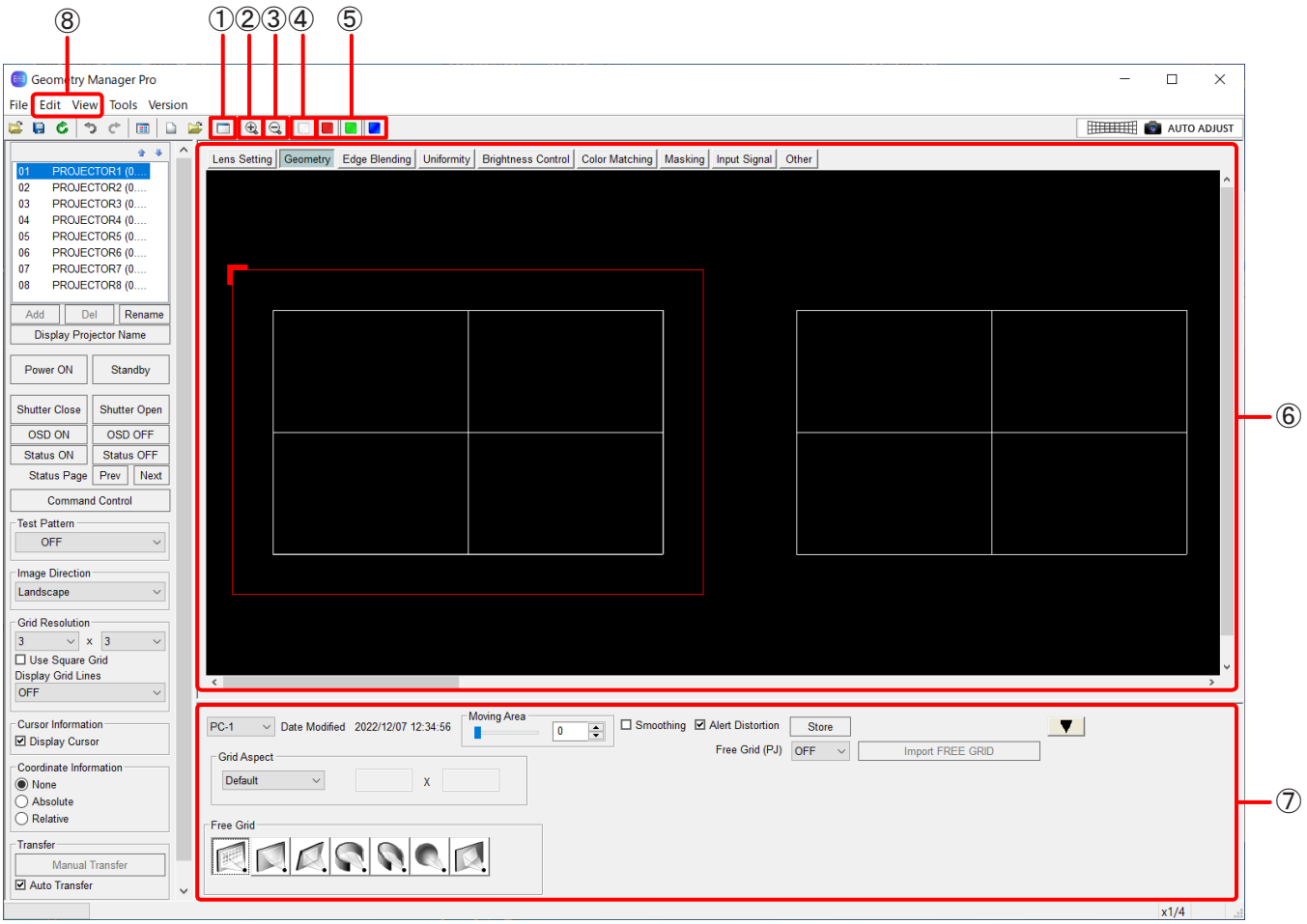
- Drag the control point with the mouse while holding down the Shift key to move it in either the horizontal or vertical direction.
- Select the control point and then press the cursor key while holding down the Ctrl key to move it in increments of 0.2 pixel. Select the control point and then press the cursor key while holding down the Alt key to move it in increments of 4 pixels.

You can also select and move the control points with a gamepad.
☞ “Gamepad Operation Preparation” (page 149)

Note

When the number of grids displayed during ongoing adjustments is reduced, the corrected grid information may be lost.
It is recommended that a small number of grids be displayed first to make coarse adjustments and then a larger number of grids be displayed to make fine adjustments.

Geometry screen



① **Sub Window**

Each time this is clicked, the Sub Window screen is switched between displayed and cleared.
An image of the entire projection area is displayed on Sub Window.

- The red frame around the Sub Window indicates the display range in the editing area.
- Sub Window display can also be switched between displayed and cleared for the sub window in the View sub window.

② **Zoom In**
Zooms in to the editing area.

③ **Zoom Out**
Zooms out the editing area.

④ **White**
This corrects the RGB color components together.

Note
This may be disabled depending on the model.

⑤ **Red, Green, Blue**
These correct only the component of the selected color.

Note
This may be disabled depending on the model.

⑥ **Editing Area**
The image can be corrected by selecting the grid using the mouse.
The settings established in the operation area are also reflected in this area.
The outermost red frame indicates the maximum area which can be projected.
The red frame has an L-shaped mark to indicate the image orientation. This mark is shown at the upper left when the Image Direction setting is Landscape, and the location where it is shown also moves depending on the Image Direction setting.

⑦ **Operation Area**
This is where the buttons, slide bars, etc. used by geometry correction are displayed.
The operations that they perform differ depending on which correction pattern has been selected.
☞ “Operation area” (page 60)

⑧ **Edit, View**
The following menu items can be used on the Geometry screen.

Edit submenu

Lock
Locks the control points of the grids selected.

Note
A locked control point will not move even if the correction pattern has been changed.
The lock will not be released even if the number of grids has been changed.

Unlock
Unlocks the control points that have been selected.

Free
Click to release the control point selection.

Reset
Click to return the selected control points to the initial status.

Flip Vertical
Click to flip vertically the correction status of the entire image.

Flip Horizontal
Click to flip horizontally the correction status of the entire image.

View submenu

Image Direction

Match the direction of the editing area to the images projected by the projector.
This performs the same operation as Image Direction in the common operation area.

Grid Resolution

Use Square Grid

This makes it possible to select the combination of the number of grids which can be selected when a check mark has been entered for Use Square Grid in the common operation area.

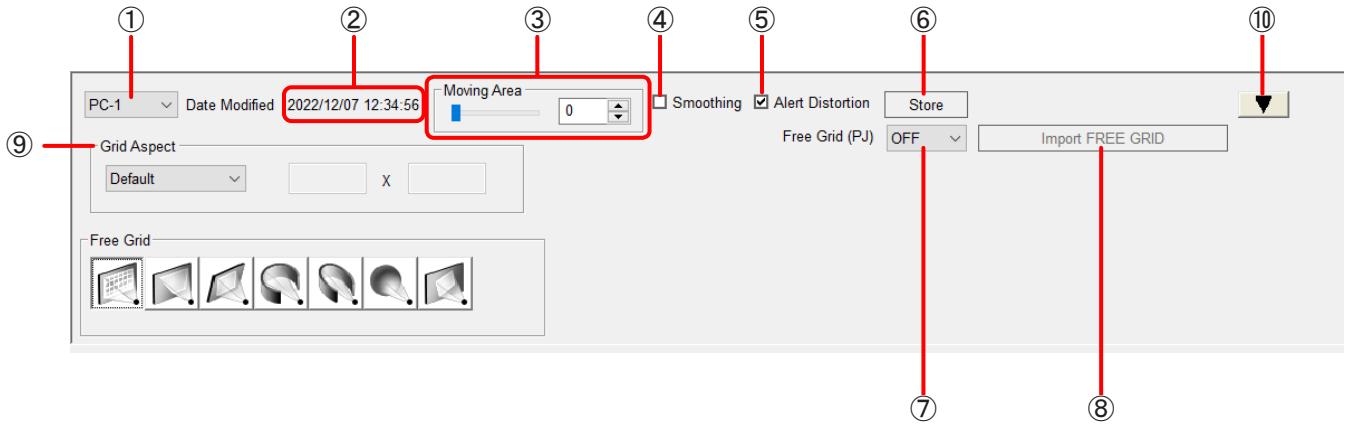
X

The number of grids in the horizontal direction is selected here.
This performs the same operation as Grid Resolution (horizontal) in the common operation area.

Y

The number of grids in the vertical direction is selected here.
This performs the same operation as Grid Resolution (vertical) in the common operation area.

■ Operation area



① Mode Switching

OFF: Disables geometry correction.
PC-1 / PC-2 / PC-3: Enables geometry correction.

Note

When geometry correction is enabled, only one piece of data (PC) can be saved for some models.

② Date and Time Stored

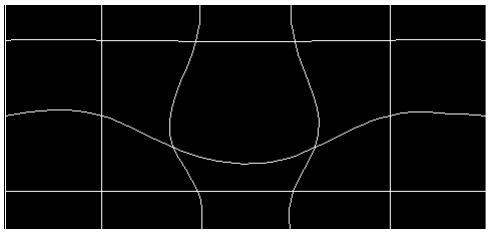
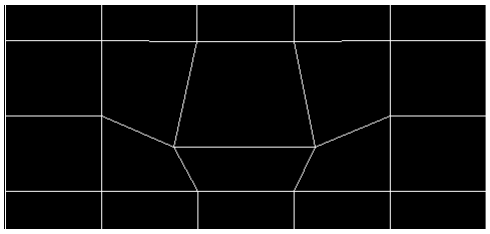
This displays the date and time that the geometry correction data was saved inside the projector.
The indication is "----/--/-- --:--:--" for a model that does not support this function.

③ Moving Area

Set here the range of the effects exerted on the grids around the control points that have been dragged and moved.

④ Smoothing

Correction using curves can be performed when a check mark is entered in ☑ Smoothing.

Example when the check mark is entered	Example when the check mark is not entered
	

⑤ Alert Distortion

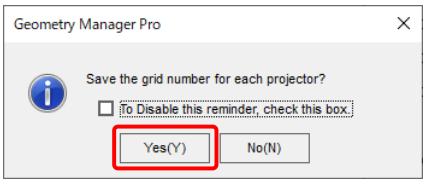
If a setting exceeding the geometric distortion limit is sent to the projector when ☑ Alert Distortion has been checked, an error message will be displayed on the dialog screen. The error message will be displayed on the status bar if a check mark has been entered in ☐ Auto Transfer.
☑ Alert Distortion is checked as the default setting.
When a check mark is not entered for ☐ Alert Distortion , even settings exceeding the geometry correction limits can be sent to the projector. Bear in mind, however, that in such cases the projected images may lose their shape.

⑥ Store

Click this button to save the current settings inside the projector after they have been reflected in the projector. The current Grid Resolution setting is also saved inside the projector at the same time.

Note

- A screen for selecting the save folder inside the projector may appear for some models.
- With some models, the Grid Resolution setting is not saved inside the projector. A screen for selecting whether to save the Grid Resolution setting will appear when you exit this software, and you can save it to this software by selecting [Yes]. The setting can be saved for up to 99 projectors, and is overwritten from the oldest save date and time when the upper limit is reached.



When the Grid Resolution setting is saved, the saved Grid Resolution setting will be loaded when the software is started next time. However, the Grid Resolution setting inside the projector will be given priority for models that can save it inside the projector.

⑦ **Free Grid (PJ)**

Enable or disable arbitrary geometry correction for the PC-1 to PC-3 currently selected for the projector.

Note

This may be disabled depending on the model.

⑧ **Import FREE GRID**

Reflect the correction results of [FREE GRID] in the OSD menu of the projector.
This is applicable to the correction results of [FREE GRID] for the PC-1 to PC-3 currently selected.
This function is available only for models that have the FREE GRID correction function in the projector.

Note

This may be disabled depending on the model.

⑨ **Gird Aspect**

When the aspect ratios of the grid and projected image differ, switch the aspect ratio of the grid to match that of the projected image.
For example, if the aspect ratio of the projected image is 4:3, the grid can be placed aligned with outer circumference by switching Grid Aspect to 4:3.

Note

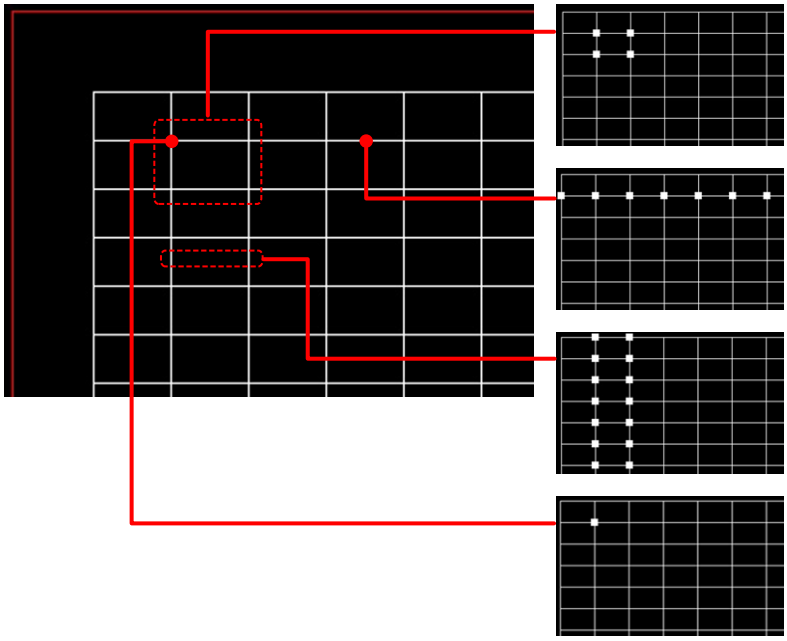
- The quality of the projected image may momentarily change while Grid Aspect is switched to other than Default because [SCREEN SETTING] and [ASPECT] in the OSD menu of the projector are switched and then processing is performed by geometry correction.
- Even if Grid Aspect is switched to other than Default, clicking the Store button will return it to Default.

⑩ **Display Switching**

Click ▼ to minimize the operation area; conversely, click ▲ to maximize it.

Selecting the control points

Select the Geometry screen and switch the mode to other than OFF. The control points can now be selected.
☞ “Free Grid (Free-form correction)” (page 63)
Drag the control points to move them. The control points cannot be moved by selecting the lines.



A multiple number of control points can be selected by dragging and enclosing the points where the grids intersect.

The control points can be selected using lines by clicking the space between one point where the grids intersect and another such point.

The control points can be selected using a multiple number of lines by dragging and enclosing the spaces between one point where the grids intersect and another such point.

When a point where the grids intersect is clicked, it can be selected as a single control point.

By clicking (or dragging) while holding down the Ctrl key, another control point can be selected while the currently selected control point keeps selected.
To move the selection to the adjacent control point, press the Tab key or Shift + Tab keys while one control point is selected, or press the cursor key while holding down the Shift key.
To cancel the selection of the control point, click anywhere other than the grid with the mouse or select [Free] in the Edit submenu displayed by right-clicking.

Right-clicking
The menu with the items described below is displayed when a grid control point is selected and the right button of the mouse is clicked.
The menu functions are the same as with the Edit submenu.
☞ “Edit submenu” (page 58).

Lock, Unlock, Free, Reset, Flip Vertical, Flip Horizontal

Free Grid (Free-form correction)

The Free Grid operation area is where the operations for all the correction patterns are selected.
The corrections made with Free Grid are also reflected in the editing area of the other correction patterns. You can superimpose corrections by selecting another correction pattern after making corrections with Free Grid, and then configuring the settings of each correction pattern.

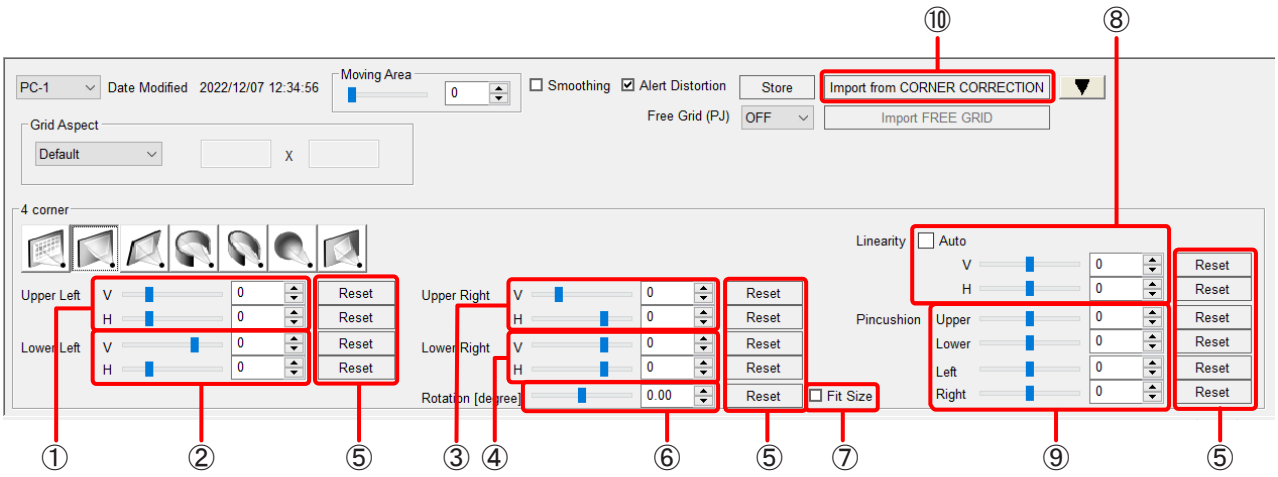
① Correction Patterns

Any of the following correction patterns can be selected.

- Free Grid (free-form correction)
- 4 Corner (4-corner correction)
- Keystone (keystone shape correction)
- Cylindrical screen (cylindrical shape correction)
- Elliptical screen (elliptical shape correction)
- Spherical screen (spherical shape correction)
- Rotation (rotational correction)
  To use this function, the upgrade kit (ET-UK20) must be applied on the selected projector, with the exception of some projectors.
  ☞ “Activation” (page 12)

4 Corner (4-corner correction)

The positions of the four corners of the image are set with this type of correction.



① Upper Left

Set the horizontal and vertical positions of the upper left.

The setting ranges vary depending on the projector model and resolution.

② Lower Left

Set the horizontal and vertical positions of the lower left.

The setting ranges vary depending on the projector model and resolution.

③ Upper Right

Set the horizontal and vertical positions of the upper right.

The setting ranges vary depending on the projector model and resolution.

④ Lower Right

Set the horizontal and vertical positions of the lower right.

The setting ranges vary depending on the projector model and resolution.

⑤ Reset

Click these to reset the respective settings which have been changed.

⑥ Rotation [degree]*

Set the rotational angle of the image here.

⑦ Fit Size*

Projected images sometimes protrude beyond the projection area when they are rotated.

When a check mark is entered for ☐ Fit Size , the image is reduced to a size in which it can be projected when it exceeds the projection area.

The image will not be reduced if a check mark is not entered.

⑧ Linearity

Set the linearity in the horizontal and vertical directions.

When a check mark is entered for ☐ Auto, the linearity values are determined automatically from the positions of the upper, lower, left, right, and four-corner points. In this case, values cannot be set.

This function can be used only for projectors that have this function.

---

* This item can only be configured if the upgrade kit (ET-UK20) has been applied to the selected projector, with the exception of some projectors.

☞ “Activation” (page 12)

⑨ **Pincushion**

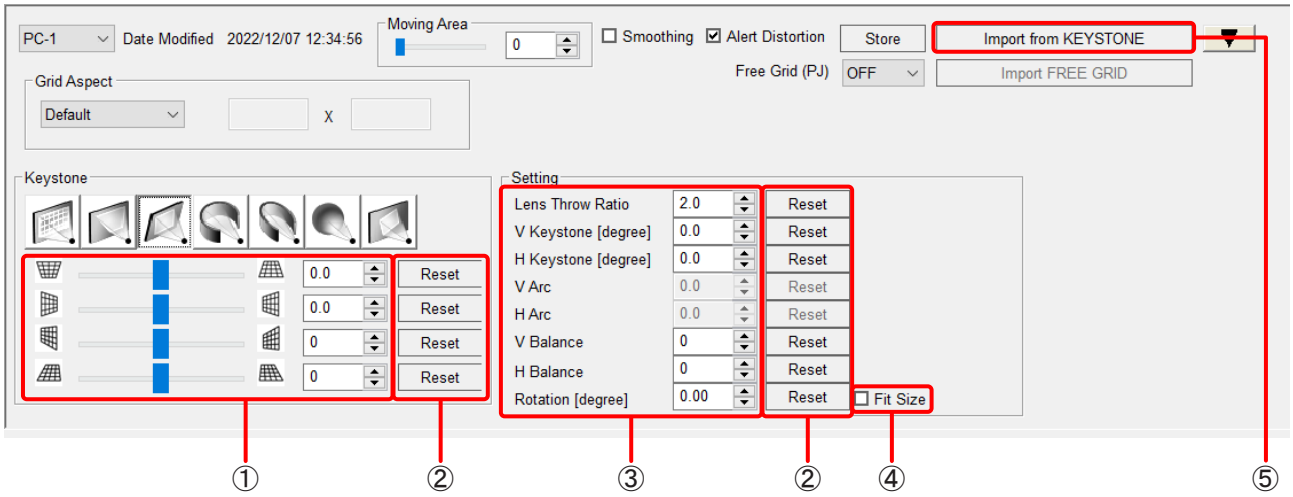
Set the pincushion independently for upper, lower, left, and right.
The setting ranges vary depending on the projector model and resolution.
The setting ranges are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

⑩ **Import from CORNER CORRECTION**

Reflect the [CORNER CORRECTION] and [CORNER/PINCUSHION] adjustment items in the OSD menu of the projector.
This is available only for models that have the CORNER/PINCUSHION and CORNER/PINCUSHION adjustment functions in the projector.

Keystone (keystone shape correction)

Images are corrected using the keystone shape as the reference with this type of correction.



① **Correction pattern adjustment area**

Select the settings for vertical, horizontal, vertical balance, and horizontal balance here.
The setting ranges vary depending on the projector model.
The setting ranges for vertical and horizontal are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

② **Reset**

Use these to reset the settings that have been changed.

③ **Setting**

Select the settings for Lens Throw Ratio, V Keystone, H Keystone, V Balance, H Balance, and Rotation* here.
The setting ranges vary depending on the projector model.
The setting ranges for V Keystone and H Keystone are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

④ **Fit Size***

Projected images sometimes protrude beyond the projection area when they are rotated.
When a check mark is entered for ☐ Fit Size , the image is reduced to a size in which it can be projected when it exceeds the projection area.
The image will not be reduced if a check mark is not entered.

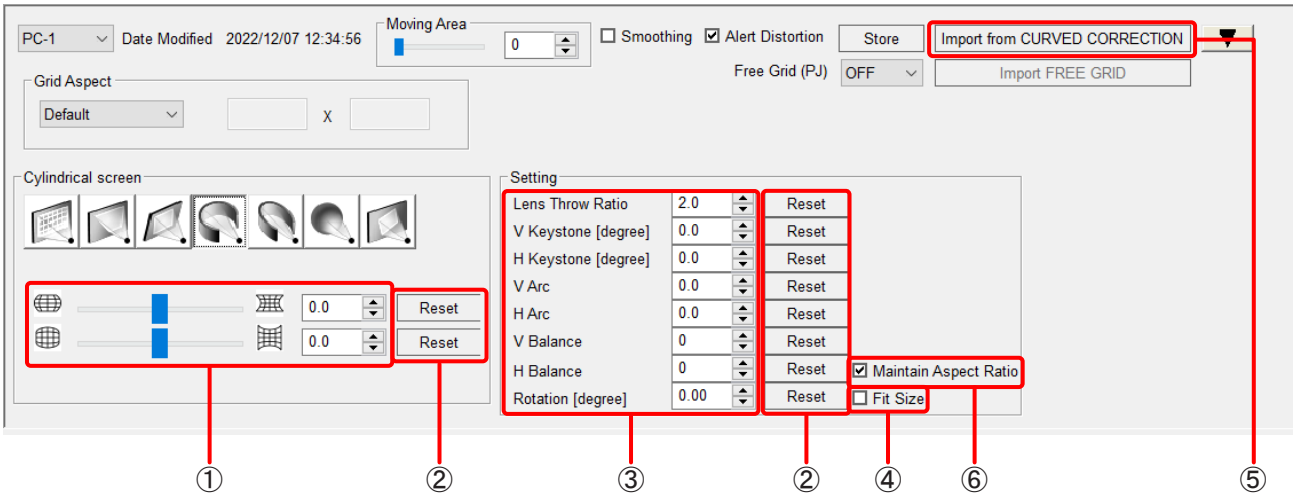
⑤ **Import from KEYSTONE**

Reflect the correction results of [KEYSTONE] in the OSD menu of the projector.

* This item can only be configured if the upgrade kit (ET-UK20) has been applied to the selected projector, with the exception of some projectors.
☞ “Activation” (page 12)

Cylindrical screen (cylindrical shape correction)

Images are corrected using the cylindrical shape as the reference with this type of correction.



① **Correction pattern adjustment area**

Select the settings for vertical arc and horizontal arc here.

The setting ranges vary depending on the projector model.

The setting ranges are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

② **Reset**

Use these to reset the settings that have been changed.

③ **Setting**

Select the settings for Lens Throw Ratio, V Keystone, H Keystone, V Arc, H Arc, V Balance, H Balance, and Rotation* here.

The setting ranges vary depending on the projector model.

The setting ranges for V Keystone, H Keystone, V Arc, and H Arc are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

④ **Fit Size***

Projected images sometimes protrude beyond the projection area when they are rotated.

When a check mark is entered for ☐ Fit Size , the image is reduced to a size in which it can be projected when it exceeds the projection area.

The image will not be reduced if a check mark is not entered.

⑤ **Import from CURVED CORRECTION**

Reflect the correction results of [CURVED] or [CURVED CORRECTION] in the OSD menu of the projector.

⑥ **Maintain Aspect Ratio**

When a check mark is entered for ☐ Maintain Aspect Ratio , correction is made so that the aspect ratio of the projected image is maintained.

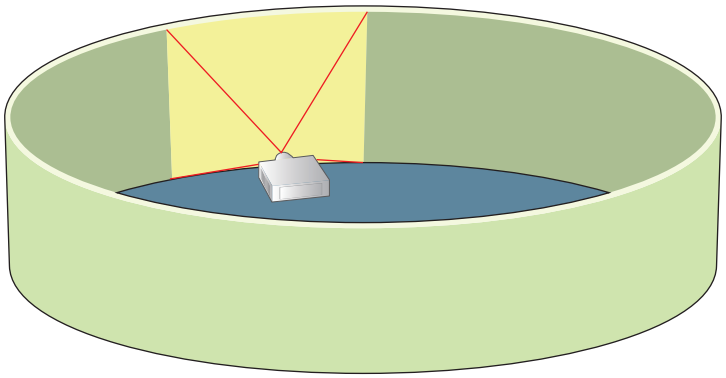
If a check mark is not entered, the aspect ratio is not maintained and correction is made using the entire surface of the display device.

This function can be used only for projectors that have this function.

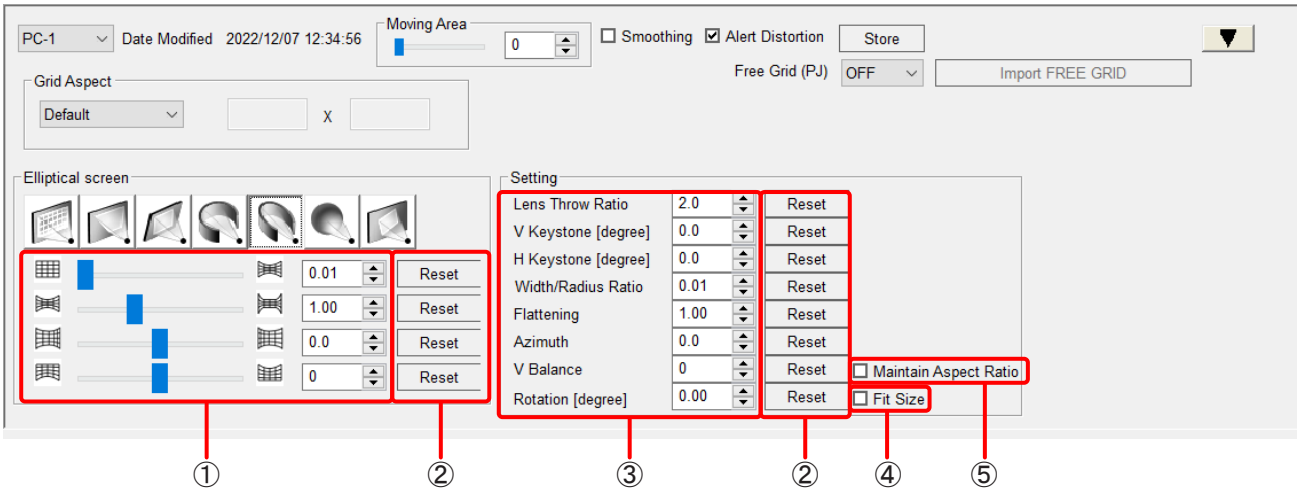
* This item can only be configured if the upgrade kit (ET-UK20) has been applied to the selected projector, with the exception of some projectors.

☞ “Activation” (page 12)

Elliptical screen (elliptical shape correction)



Images are corrected to fit a screen whose shape is elliptical when viewed from above.



① Correction pattern adjustment area

Select the settings for width/radius ratio, flattening, azimuth, and vertical balance here.

② Reset

Use these to reset the settings that have been changed.

③ Setting

Select the settings for Lens Throw Ratio, V Keystone, H Keystone, Width/Radius Ratio, Flattening, Azimuth, V Balance, and Rotation* here.

The setting ranges for V Keystone and H Keystone are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

④ Fit Size*

Projected images sometimes protrude beyond the projection area when they are rotated.

When a check mark is entered for Fit Size, the image is reduced to a size in which it can be projected when it exceeds the projection area.

The image will not be reduced if a check mark is not entered.

⑤ Maintain Aspect Ratio

When a check mark is entered for Maintain Aspect Ratio Aspect Ratio, correction is made so that the aspect ratio of the projected image is maintained.

If a check mark is not entered, the aspect ratio is not maintained and correction is made using the entire surface of the display device.

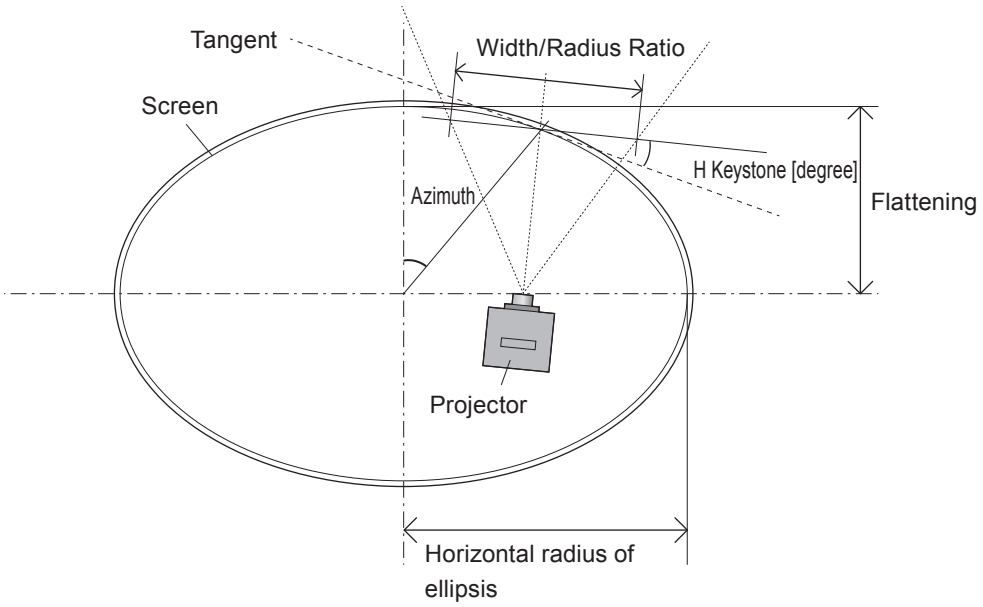
This function can be used only for projectors that have this function.

* This item can only be configured if the upgrade kit (ET-UK20) has been applied to the selected projector, with the exception of some projectors.

☞ “Activation” (page 12)

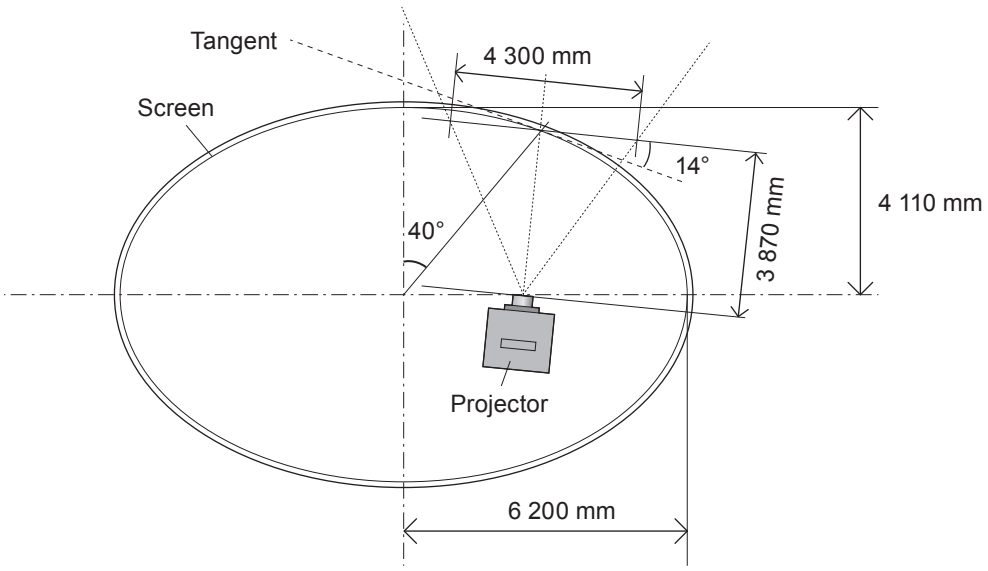
■ Description of elliptical screen (elliptical shape correction) parameters

View of projector as seen from above



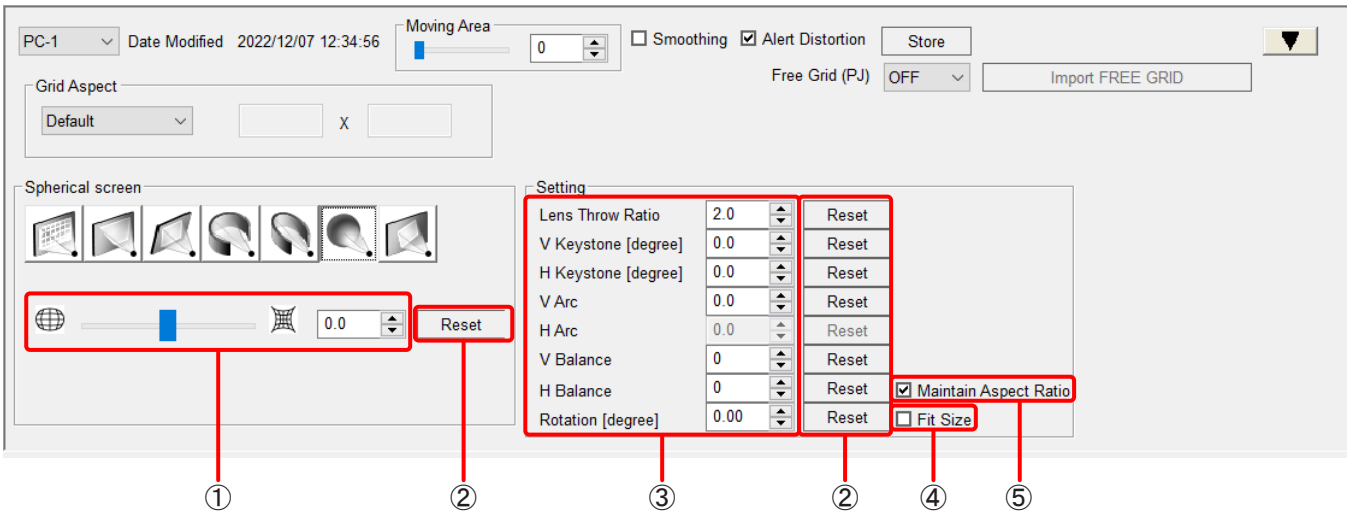
Example of settings

Setting item	Calculation method	Setting
Lens Throw Ratio	Projection distance ÷ width of image on flat screen = 3 870 mm ÷ 4 300 mm	0.9
H Keystone [degree]	Angle formed with tangent of projection center	14.0
Width/Radius Ratio	Width of image on flat screen ÷ radius in horizontal direction of ellipsis = 4 300 mm ÷ 6 200 mm	0.69
Flattening	Radius in vertical direction of ellipsis ÷ radius in horizontal direction of ellipsis = 4 110 mm ÷ 6 200 mm	0.66
Azimuth	Position of projected image center on ellipsis	40.0



Spherical screen (spherical correction)

Images are corrected using the spherical shape as the reference with this type of correction.



① Correction pattern adjustment area

Select the settings for vertical arc and horizontal arc here.
The setting ranges vary depending on the projector model.
The setting ranges are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

② Reset

Use these to reset the settings that have been changed.

③ Setting

Select the settings for Lens Throw Ratio, V Keystone, H Keystone, V Arc, V Balance, H Balance, and Rotation* here.
The setting ranges vary depending on the projector model.
The setting ranges for V Keystone, H Keystone, and V Arc are expanded when the upgrade kit (ET-UK20) has been applied to the selected projector.

④ Fit Size*

Projected images sometimes protrude beyond the projection area when they are rotated.
When a check mark is entered for ☐ Fit Size , the image is reduced to a size in which it can be projected when it exceeds the projection area.
The image will not be reduced if a check mark is not entered.

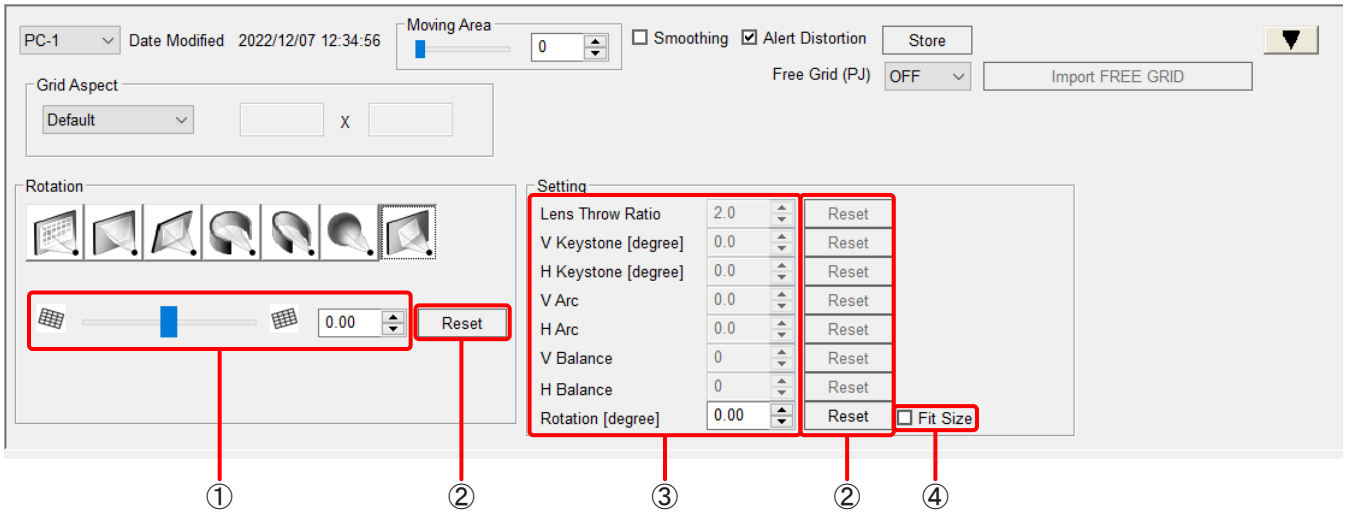
⑤ Maintain Aspect Ratio

When a check mark is entered for ☐ Maintain Aspect Ratio , correction is made so that the aspect ratio of the projected image is maintained.
If a check mark is not entered, the aspect ratio is not maintained and correction is made using the entire surface of the display device.
This function can be used only for projectors that have this function.

* This item can only be configured if the upgrade kit (ET-UK20) has been applied to the selected projector, with the exception of some projectors.
☞ “Activation” (page 12)

Rotation (rotation correction)

Images are rotated with this type of correction.
To use this function, the upgrade kit (ET-UK20) must be applied on the selected projector, with the exception of some projectors.
☞ “Activation” (page 12)



① **Correction pattern adjustment area**
Select the setting for the gradient here.

② **Reset**
Use these to reset the settings that have been changed.

③ **Setting**
Select the setting for the gradient here.

④ **Fit Size**
Projected images sometimes protrude beyond the projection area when they are rotated.
When a check mark is entered for Fit Size , the image is reduced to a size in which it can be projected when it exceeds the projection area.
The image will not be reduced if a check mark is not entered.

Edge Blending

The joins between images can be corrected when constructing a multi-display screen by combining the projected images from multiple projectors.
The correction method for edge blending differs depending on the projector model.

■ When the projector does not support free-form correction

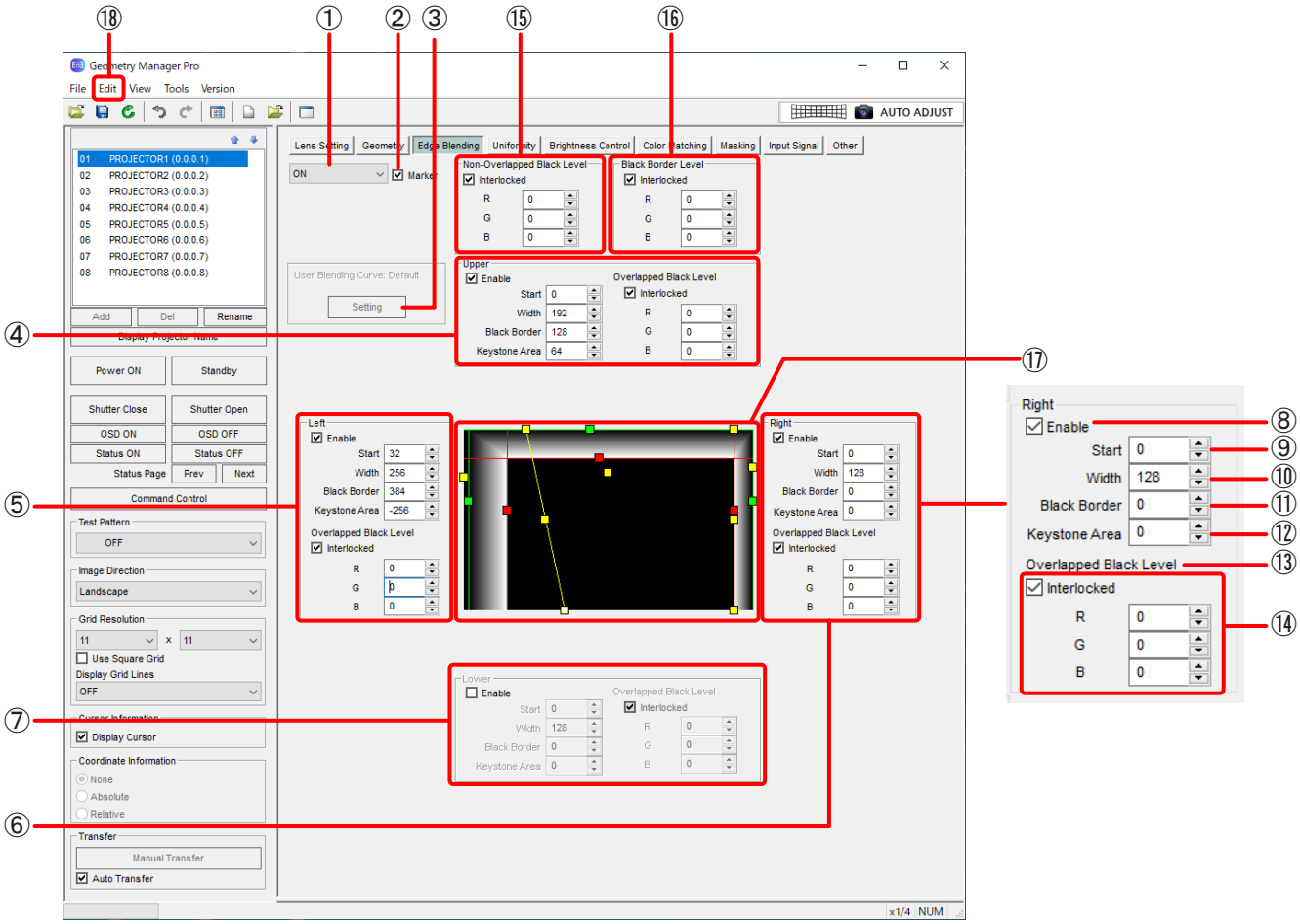
Set the start position, width, and black level border width for edge blending. Make the joins between the images less visible by applying a brightness gradient to the parts where projected images overlap.

■ When the projector supports free-form correction

Set the width and black level border shape for edge blending to free-form. Make the joins between the images less visible by applying a brightness gradient using a border shape that matches the screen shape.

Edge Blending screen

■ When the projector does not support free-form correction



① **Mode Switching**

OFF:

The edge blending settings are canceled.

ON:

Makes the edge blending settings effective.

User:

Adjusts settings for edge blending using the user-defined curve.

Note

- Selecting User may not be possible depending on the model.
- When the input signal of the projector has been changed, it may be necessary to re-set the edge blending mode and the Upper, Lower, Left and Right Enable boxes.

② **Marker**

When a check mark is entered in ☐ Marker , markers are displayed in the editing area and on the images projected from projector.
The start position for edge blending is indicated by display of a green line, and the edge blending width is indicated by display of a red line.
☞ “Editing Area” (page 73)

③ **Setting**

Click this button to display the user-defined curve setting screen.
☞ “User-defined curve setting screen” (page 77)

④ **Upper**

The upper side settings of the projected image are set here.

⑤ **Left**

The left side settings of the projected image are set here.

⑥ **Right**

The right side settings of the projected image are set here.

⑦ **Lower**

The lower side settings of the projected image are set here.

⑧ **Enable**

Enter a check mark in ☐ Enable to allow edge blending correction to be performed. Only the settings for items with a check mark entered in ☐ Enable take effect.

Note

When the input signal of the projector has been changed, it may be necessary to re-set the edge blending mode and the Upper, Lower, Left and Right Enable boxes.

⑨ **Start**

The starting position of edge blending is set here.

⑩ **Width**

The width of the edge blending is set here.

⑪ **Black Border (Outside Area)**

Set the border width of the black level.
[Outside Area] may be displayed in place of [Black Border] for some models.

⑫ **Keystone Area**

Set the slope of the black level border when using the edge blending at the same time as the keystone correction.
This function can be used only for projectors that have this function.

⑬ **Overlapped Black Level (Bright Blending)**

The Red, Green and Blue values are adjusted here to set the brightness of the areas subject to edge blending.
These settings are applied to the edge blending width. The higher the numerical value, the brighter the colors.
[Bright Blending] may be displayed in place of [Overlapped Black Level] for some models.

⑭ **Interlocked**

When a check mark is entered for ☑ Interlocked , Overlapped Black Level can be set with the Red, Green and Blue values all linked together.

⑮ **Non-Overlapped Black Level (Bright Inside)**

The black level inside the area where the images are to be superimposed is set here.

When a check mark is removed from ☑ Interlocked , the Red, Green and Blue values can be set separately.
[Non-Overlapped Black Level] may be displayed in place of [Bright Inside] for some models.

⑯ **Black Border Level (Bright Outside)**

Set the black level of the parts where images are superimposed.

When a check mark is removed from ☑ Interlocked , the Red, Green and Blue values can be set separately.
[Black Border Level] may be displayed in place of [Bright Outside] for some models.

⑰ **Editing Area**

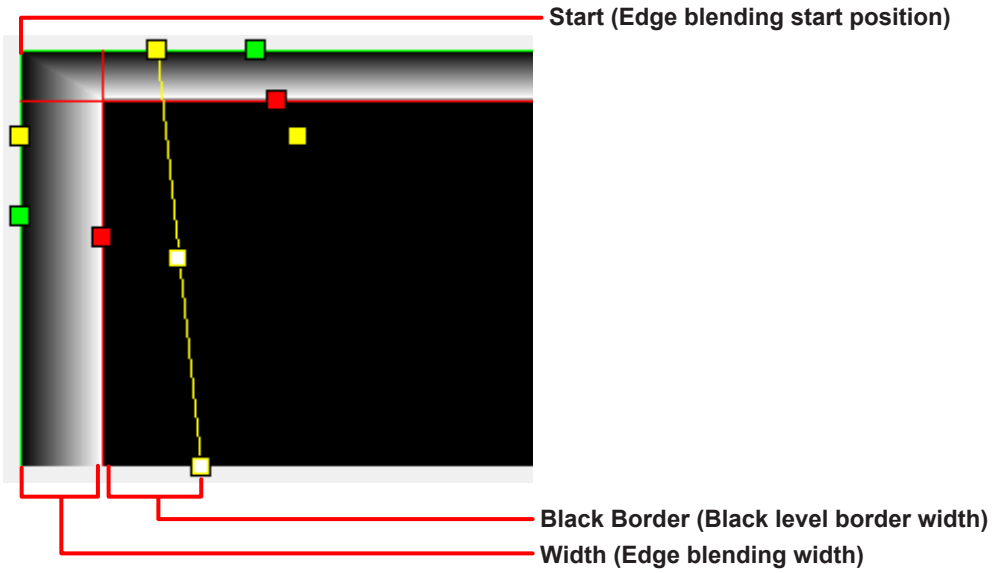
The edge blending setting status is displayed here.

By dragging these markers, the start position of the edge blending (green), edge blending width (red), and black level border width (yellow) can be set.

The settings established with Upper, Left, Right and Lower are also reflected in this area.

Note

The line for the black level border width (yellow) is displayed only when the mouse cursor is positioned on the marker (yellow).



⑱ **Edit**

In addition to the menu items described in “Main menu” (page 38), the following menu items can be used on the Edge Blending screen.

Edit submenu

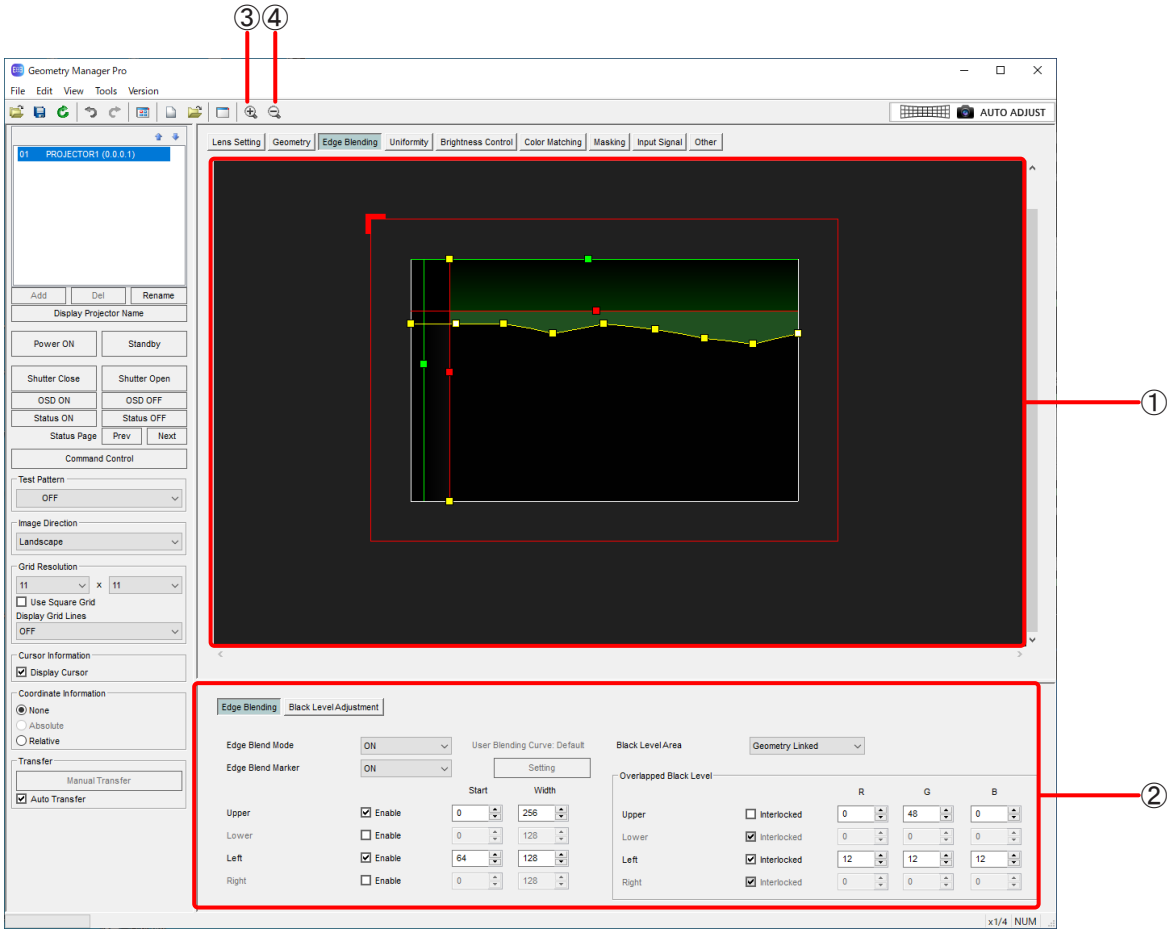
Flip Vertical:

Click to flip vertically the correction status of the entire image.

Flip Horizontal:

Click to flip horizontally the correction status of the entire image.

■ When the projector supports free-form correction



① **Editing area**

The edge blending width and black level border shape can be set by operating the adjustment points with the mouse.
The settings configured in the operation area are also reflected in this area.
The outmost red frame has an L-shaped mark to indicate the image orientation. This mark is shown at the upper left when the Image Direction setting is Landscape, and the location where it is shown also moves depending on the Image Direction setting.

Note

The line for the black level border width (yellow) is displayed only when the mouse cursor is positioned on the marker (yellow).

② **Operation area**

This is where the buttons and other controls used for edge blending are displayed.
Switching between edge blending and black level adjustment changes the operations that they perform.
☞ “Edge Blending” (page 75)
☞ “Black Level Adjustment” (page 76)

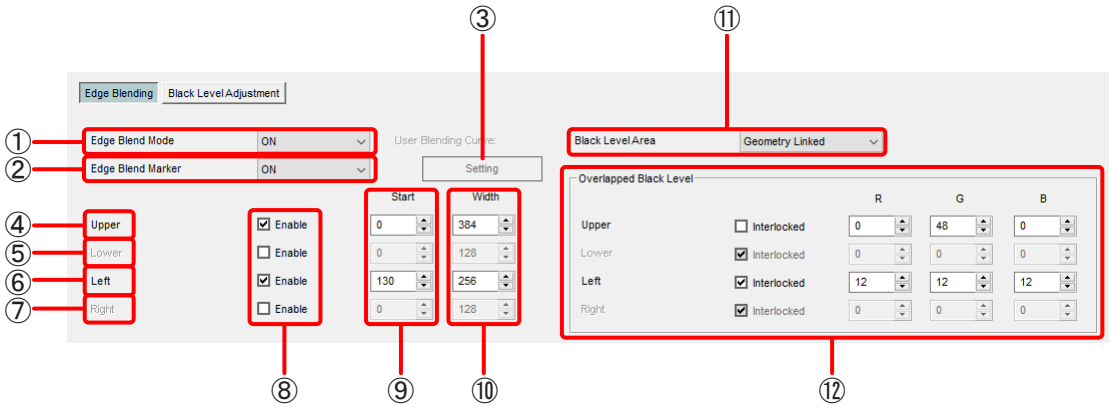
③ **Zoom In**

Zooms in to the editing area.

④ **Zoom Out**

Zooms out from the editing area.

Edge Blending



① **Edge Blend Mode**

OFF:

The edge blending settings are canceled.

ON:

Makes the edge blending settings effective.

User:

Adjusts settings for edge blending using the user-defined curve.

Note

When the input signal of the projector has been changed, it may be necessary to re-set the edge blending mode and the Upper, Lower, Left and Right Enable boxes.

② **Edge Blend Marker**

When this is set to ON, markers (lines) are displayed in the editing area and on the images projected from the projector. The start position for edge blending is indicated by display of a green line, and the edge blending width is indicated by display of a red line.

③ **Setting**

Click this button to display the user-defined curve setting screen.

☞ “User-defined curve setting screen” (page 77)

④ **Upper**

The upper side settings of the projected image are set here.

⑤ **Lower**

The lower side settings of the projected image are set here.

⑥ **Left**

The left side settings of the projected image are set here.

⑦ **Right**

The right side settings of the projected image are set here.

⑧ **Enable**

Enter a check mark in Enable to allow edge blending correction to be performed. Only the settings for items with a check mark entered in Enable take effect.

Note

When the input signal of the projector has been changed, it may be necessary to re-set the edge blending mode and the Upper, Lower, Left and Right Enable boxes.

⑨ **Start**

The starting position of edge blending is set here.

⑩ **Width**

The width of the edge blending is set here.

⑪ **Black Level Area**

The area of black level adjustment is set here.

Geometry Linked:

Black level adjustment is performed only in the video display area.

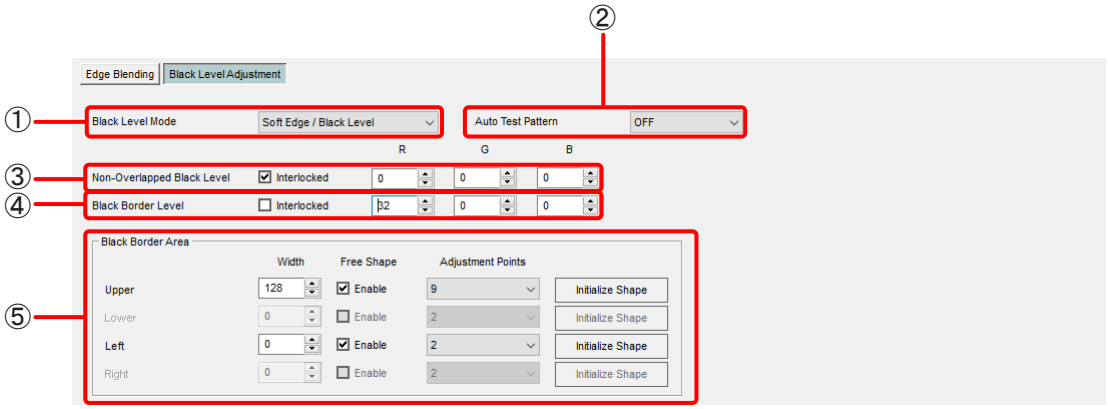
Geometry Unlinked:

Black level adjustment is performed for the entire display panel area.

⑫ **Overlapped Black Level**

The Red, Green and Blue values are adjusted here to set the brightness of the areas subject to edge blending. These settings are applied to the edge blending width. The higher the numerical value, the brighter the colors.

Black Level Adjustment



① **Black Level Mode**

Soft Edge / Black Level:

Edge blending and black level adjustment are performed at the same time.

Black Level Only:

Only black level adjustment is performed.

② **Auto Test Pattern**

When this setting is ON, the Black pattern is shown on the projected image when you go to this screen.

③ **Non-Overlapped Black Level**

The black level inside the area where the images are to be superimposed is set here.

When a check mark is removed from ☑ Interlocked , the Red, Green and Blue values can be set separately.

④ **Black Border Level**

Set the black level of the parts where images are superimposed.

When a check mark is removed from ☑ Interlocked , the Red, Green and Blue values can be set separately.

⑤ **Black Border Area**

Set the black level border.

Width:

Set the width of the black level border.

Free Shape:

Select the ☐ Enable check box to set the black level border shape to free-form.

Adjustment Points:

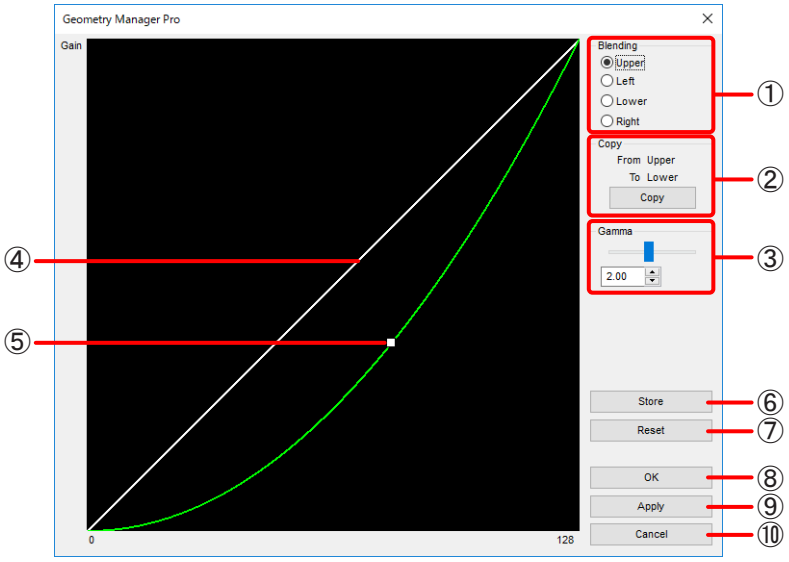
Specify the number of adjustment points. You can select from 2, 3, 5, 9, and 17.

Initialize Shape:

Initialize the black level border settings.

User-defined curve setting screen

When [Setting] is clicked, the user-defined curve setting screen is displayed.
The gradient (brightness gradient) at which edge blending is performed is set using a gamma curve.
When a user-defined curve setting is changed from the initial curve, the display above [Setting] changes from [User Blending Curve: Default] to [User Blending Curve: Changed].



① **Blending**
The position where the user-defined curve is to be set is selected here.

② **Copy**
Click this to copy the current user-defined curve setting.
The setting is copied from top to bottom (or vice versa) or from left to right (or vice versa).

③ **Gamma**
The user-defined curve is set here.
For numerical value input: Enter a setting from 0.25 to 4.00 (in 0.01 steps).

④ **Initial Curve**
The initial setting of the user-defined curve is displayed here.

⑤ **Correction Curve**
The operation point in the center can be dragged to change the user-defined curve setting (shape of the gamma curve).

⑥ **Store**
Click this to reflect the currently displayed user-defined curve setting in the projector and save the setting in the projector.
The setting remains saved even when the main power of the projector has been set to “off”.

⑦ **Reset**
Click this to reset the currently displayed user-defined curve setting and return it to the initial value.

⑧ **OK**

Click this to reflect the user-defined curve setting in the projector and close the user-defined curve screen.

This operation is reflected in the projector even when a check mark has not been entered in Auto Transfer.

⑨ **Apply**

Click this to reflect the user-defined curve setting in the editing area.

This operation is reflected in the projector even if a check mark has not been entered for Auto Transfer.

⑩ **Cancel**

Click this to cancel the setting and close the user-defined curve screen.

Uniformity

Correct the unevenness in color and brightness within the screen. This may be disabled depending on the model.
There are the following two correction methods for uniformity depending on the projector model.

■ When DLP Projector

Gradient Correction

When unevenness in color occurs in one direction across the image, greater uniformity can be obtained by applying correction in the vertical or horizontal direction.
Correction is performed by toning down (thinning) the selected color in a gradient-like manner from one side of the image to the other.

Flexible Correction

If other than OFF was selected in Flexible Correction, correction can be performed by specifying ranges for the localized unevenness of colors in the image.
When the image contains localized unevenness in color, correction is applied after specifying the range.
As with Gradient Correction, correction is performed by toning down (thinning) the selected color in a gradient-like manner.
☞ “Flexible Correction / PC Correction Procedure” (page 85)
To use the Flexible Correction function, the upgrade kit (ET-UK20) must be applied on the selected projector, with the exception of some projectors.
☞ “Activation” (page 12)

■ When LCD Projector

User Correction

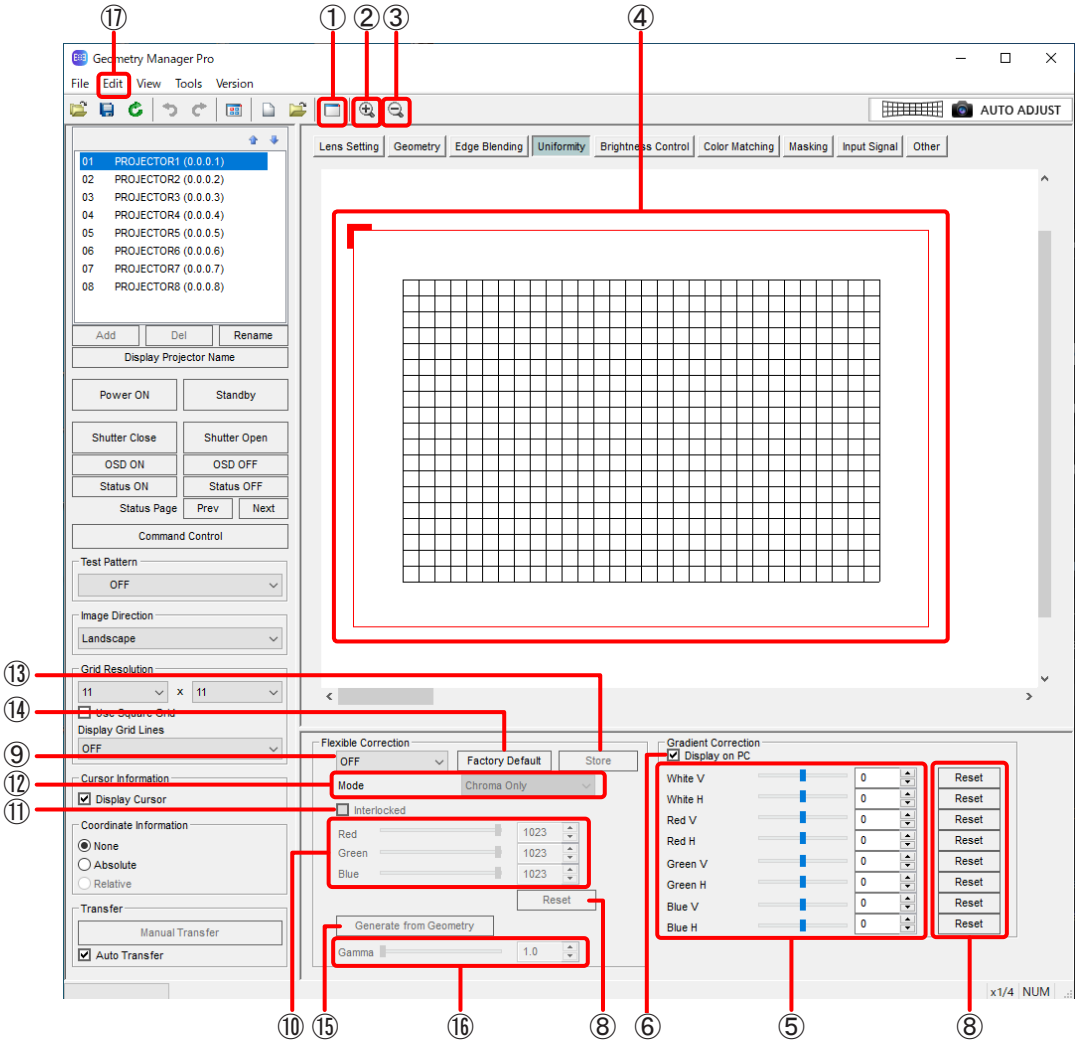
Greater uniformity can be obtained by applying correction in the directions of the four corners of the screen or in vertical or horizontal direction.
Correction is performed by toning down (thinning) or toning up (deepening) the selected color in a gradient-like manner from one side of the image to the other.

PC Correction

Correction can be performed by specifying ranges for the localized unevenness in the screen in the same way as Flexible Correction.
Correction is performed by toning down (thinning) or toning up (deepening) the selected color in a gradient-like manner from one side of the image to the other in the same way as User Correction.
To use the PC Correction function, the upgrade kit (ET-UK20) must be applied on the selected projector.

Uniformity screen

■ When DLP Projector



① **Sub Window**

Each time this is clicked, the Sub Window screen is switched between displayed and cleared.

The Sub Window displays a representation of the Gradient Correction and Flexible Correction settings for the entire projection area.

- Sub Window display can also be switched between displayed and cleared for the sub window in the View sub window.

② **Zoom In**

Zooms in to the editing area.

The center of the target area is zoomed in when the target area has been selected in the editing area.

③ **Zoom Out**

Zooms out the editing area.

④ **Editing Area**

A representation of the Gradient Correction and Flexible Correction settings is displayed.

When applying Flexible Correction, this is where you select target points and set the target area.

The outmost red frame has an L-shaped mark to indicate the image orientation. This mark is shown at the upper left when the Image Direction setting is Landscape, and the location where it is shown also moves depending on the Image Direction setting.

Mesh granularity in the editing area differs depending on the model.

⑤ **Gradient Correction**

When applying gradation to the entire image, set the degree of color variation.
You can set this individually for each of the colors White, Red, Green and Blue, both for the vertical direction (V) and the horizontal direction (H).
For numerical value input: Enter a value from -127 to 127.

- How the vertical (V) and horizontal (H) gradation slopes varies depending on the model. For details, refer to “Settings” - “[DISPLAY OPTION] menu” - “[UNIFORMITY]” in the operating instructions of the projector.

⑥ **Display on PC**

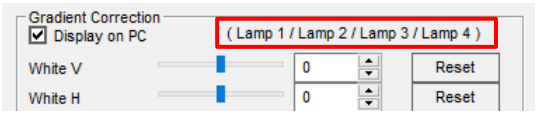
When you put a check in ☑ Display on PC , the Gradient Correction settings are applied in the editing area.
Put a check here when you want to see the combined effect of Gradient Correction settings and Flexible Correction settings in the editing area.
When the check is removed from ☐ Display on PC , the Gradient Correction settings are not applied to display in the editing area. The settings will still be reflected in the projector, however.

⑦ **Lamp Status**

When a projector that uses a lamp as light source is selected, this indicates the lamps that are currently lit.
[None] is displayed if none of the lamps is lighted.

Note

This may be disabled depending on the model.



⑧ **Reset**

Return the Gradient Correction and Flexible Correction settings to their default values.

⑨ **Switch mode**

OFF: Disable the Flexible Correction settings.
Geometry Linked: Enable the Flexible Correction settings and process before geometry correction.
Geometry Unlinked: Enable the Flexible Correction settings and process after geometry correction.

Note

- The selection options may be [OFF] and [ON] depending on the model.

Right-clicking

If other than OFF was selected in Flexible Correction, clicking the right button of the mouse in the editing area displays a menu with following items. The functions of these items are the same as with the Edit submenu items.
☞ “Edit submenu” (page 82)

Reset, Flip Vertical, Flip Horizontal, Area Select, Point Select

⑩ **Flexible Correction**

When correcting partial unevenness in image color, you can set the degree of the change in the gradation color to be applied to the area surrounding the selected target point.
This setting can be made individually for each of the three colors Red, Green, and Blue.
Setting range: 0 to 1023

⑪ **Interlocked**

By putting a check in ☑ Interlocked , you can set Flexible Correction to link the value set to all three of colors Red, Green, and Blue.

⑫ **Mode**

Chroma Only: Correct only the unevenness of colors. Select this when giving priority to the brightness of the overall projected image.

Luminance / Chroma: Correct the unevenness of luminance and colors.

Note

This may be disabled depending on the model.

⑬ **Store**

Reflects the gradation settings in the projector and saves them in the projector.

The settings are maintained even when the main power of the projector has been turned off.

⑭ **Factory Default**

Discard the current Flexible Correction settings and initialize to the factory default state.

Note

This may be disabled depending on the model.

⑮ **Generate from Geometry**

Generate the data of Flexible Correction based on the adjustment data of geometry correction.

If you select the adjustment data of geometry correction to reference, a selection screen appears for selecting whether or not to display in combination with the Flexible Correction data currently being adjusted or to discard that data and create new data.

⑯ **Gamma**

Perform inverse gamma correction to remove gamma value influence.

Setting range: 1.0 to 2.8 (in 0.1 steps)

Adjustment may not be possible depending on the model.

⑰ **Edit**

In addition to the menu items described in “Main menu” (page 38), the following menu items can be used on the Uniformity screen. However, these menu items are valid only when the Flexible Correction method is used for correction.

Edit submenu

Reset

Return the Gradient Correction and Flexible Correction settings to their default values.

This item cannot be selected when [Area Select] has been selected.

Neither can it be selected when the target area has not been set.

Flip Vertical

Click to flip vertically the correction status of the entire image.

This item cannot be selected when [Area Select] has been selected.

Flip Horizontal

Click to flip horizontally the correction status of the entire image.

This item cannot be selected when [Area Select] has been selected.

Area Select

While an area is selected, its control points are displayed.

The target area can be enlarged or reduced or moved using the control points.

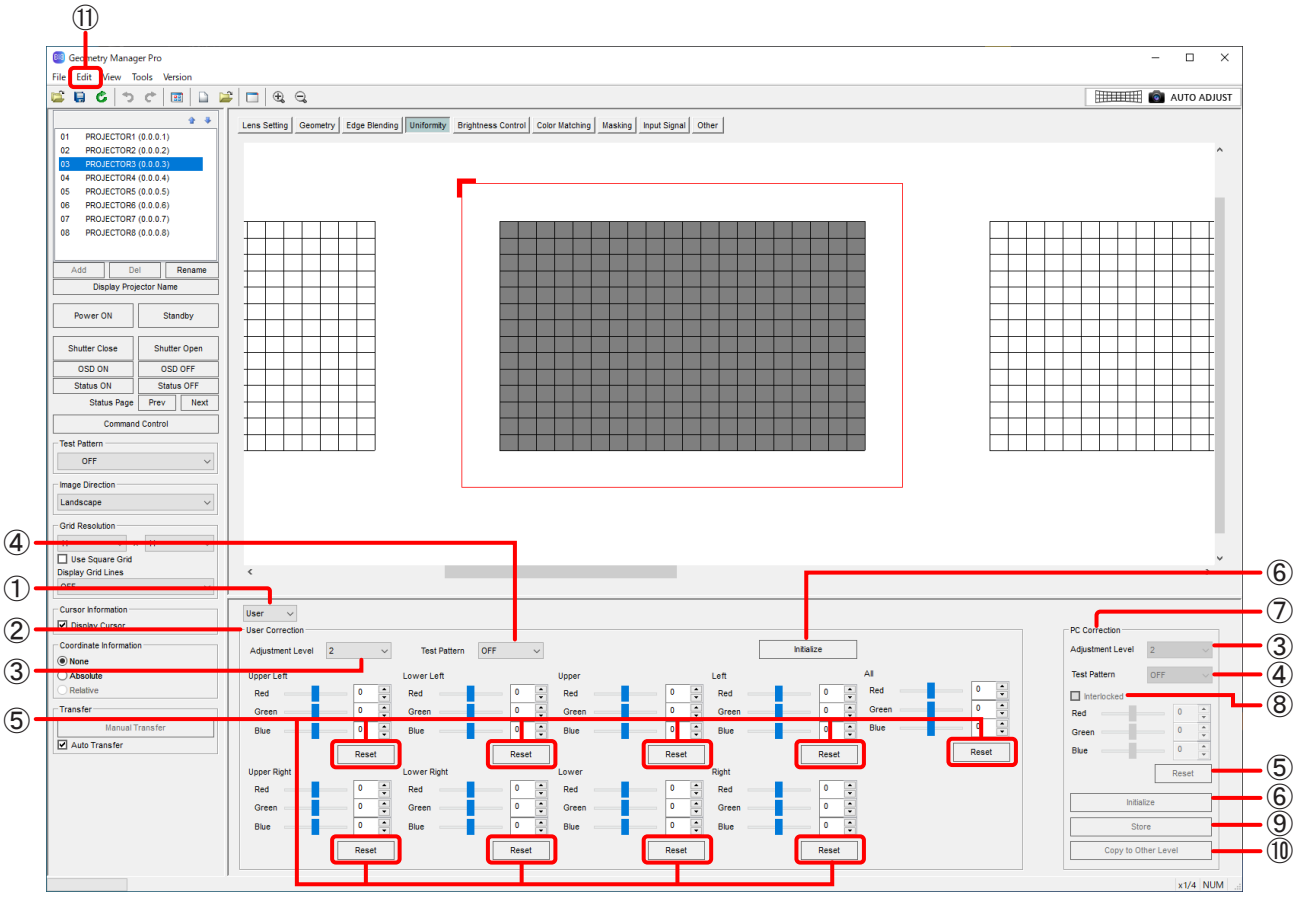
- [Area Select] cannot be selected concurrently with [Point Select].

Point Select

Confirms settings for the target area currently being set.

- [Point Select] cannot be selected concurrently with [Area Select].

■ When LCD Projector



① **Mode Switching**

OFF: Disable the uniformity adjustment settings.

Use: Enable the User Correction settings.

PC: Enable the PC Correction settings.

Note

Only one of User Correction and PC Correction can be enabled.

② **User Correction**

Correct the brightness and color unevenness of the overall screen in Upper Left, Lower Left, Upper Right, Lower Right, Upper, Lower, Left, Right and All.

The setting range differs depending on the model.

Note

- The setting range is limited depending on [Adjustment Level].
- The correction of All may not be supported depending on the model.
- The area to adjust differs depending on the model.

③ **Adjustment Level**

Specify the adjustment level of images.

The higher the value, the darker the images.

The setting range differs depending on the model.

④ **Test Pattern**

OFF: A test pattern is not displayed during adjustment.

ON: A test pattern is displayed during adjustment.

⑤ **Reset**
Return the corresponding User Correction and PC Correction settings to their default values.

⑥ **Initialize**
Initialize the User Correction and PC Correction settings for the currently selected adjustment level.

⑦ **PC Correction**
When correcting partial unevenness in image color, you can set the degree of the change in the gradation color to be applied to the area surrounding the selected target point.
This setting can be made individually for each of the three colors Red, Green, and Blue.
The setting range differs depending on the model.

Note

The setting range is limited depending on [Adjustment Level].

⑧ **Interlocked**
By selecting the Interlocked check box, you can set PC Correction by linking the three colors Red, Green, and Blue with the same value.

⑨ **Store**
Reflect the PC Correction settings for the currently selected adjustment level in the projector and save the setting values in the projector.
The settings are maintained even when the main power of the projector has been turned off.

⑩ **Copy to Other Level**
Copy the PC Correction settings for the currently selected adjustment level to another adjustment level.

Note

The data saved in the projector can be copied. If you wish to copy the data you are working on, save it to the projector first and then execute this.

⑪ **Edit**
In addition to the menu items described in “Main menu” (page 38), the following menu items can be used on the Uniformity screen. However, these menu items are valid only when the PC Correction method is used for correction.

Edit submenu

Reset
Return the User Correction and PC Correction settings to their default values.
This item cannot be selected when [Area Select] has been selected.
Neither can it be selected when the target area has not been set.

Flip Vertical
Click to flip vertically the correction status of the entire image.
This item cannot be selected when [Area Select] has been selected.

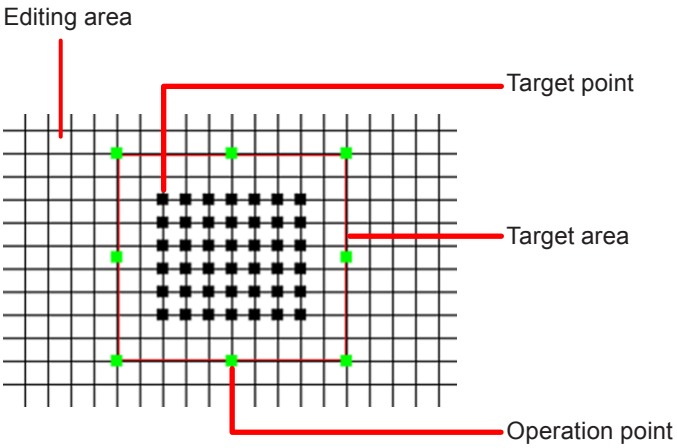
Flip Horizontal
Click to flip horizontally the correction status of the entire image.
This item cannot be selected when [Area Select] has been selected.

Area Select
While an area is selected, its control points are displayed.
The target area can be enlarged or reduced or moved using the control points.
- [Area Select] cannot be selected concurrently with [Point Select].

Point Select
Confirms settings for the target area currently being set.
- [Point Select] cannot be selected concurrently with [Area Select].

Flexible Correction / PC Correction Procedure

Select the target point from which gradation is to be applied, and then specify the target area (the range to be corrected) and apply correction. When doing this, specify the points at which grid lines cross as target points.



1 **Select other than OFF in Flexible Correction for a DLP projector and select PC in Flexible Correction for an LCD projector, and enable the Flexible Correction / PC Correction settings.**

2 **Click or drag the mouse to select a target point.**

You can also select multiple target points at the same time.
A red frame is displayed around the perimeter of the area defined by the selected target points, and this becomes the target area (the correction area).
* The target area and target point can be selected using the same method as for the control points of the geometry correction grid.
☞ “Selecting the control points” (page 62)

3 **Adjust the parameters.**

Gradation is applied to the selected color toward the periphery of the target area, treating the target point as the starting point.

4 **Right-click and select [Area Select], and display the operation points (green) in the target area.**

Using the mouse, drag the operation points to enlarge or reduce the size of the target area. Drag an operation point with the mouse while holding down the Shift key to enlarge or reduce the size symmetrically with the center of the target area treated as the target point.
If the mouse cursor is placed in the target area and then dragged, the target area can be moved.
- [Area Select] can also be selected on the Edit submenu.

Note

Enlarging or reducing the size of the target area does not change the number of selected target points.

5 **Right-click to select [Point Select], and release the operation point display.**

- [Point Select] can also be selected on the Edit submenu.

Note

[Point Select] and [Area Select] can be toggled by pressing the space key.

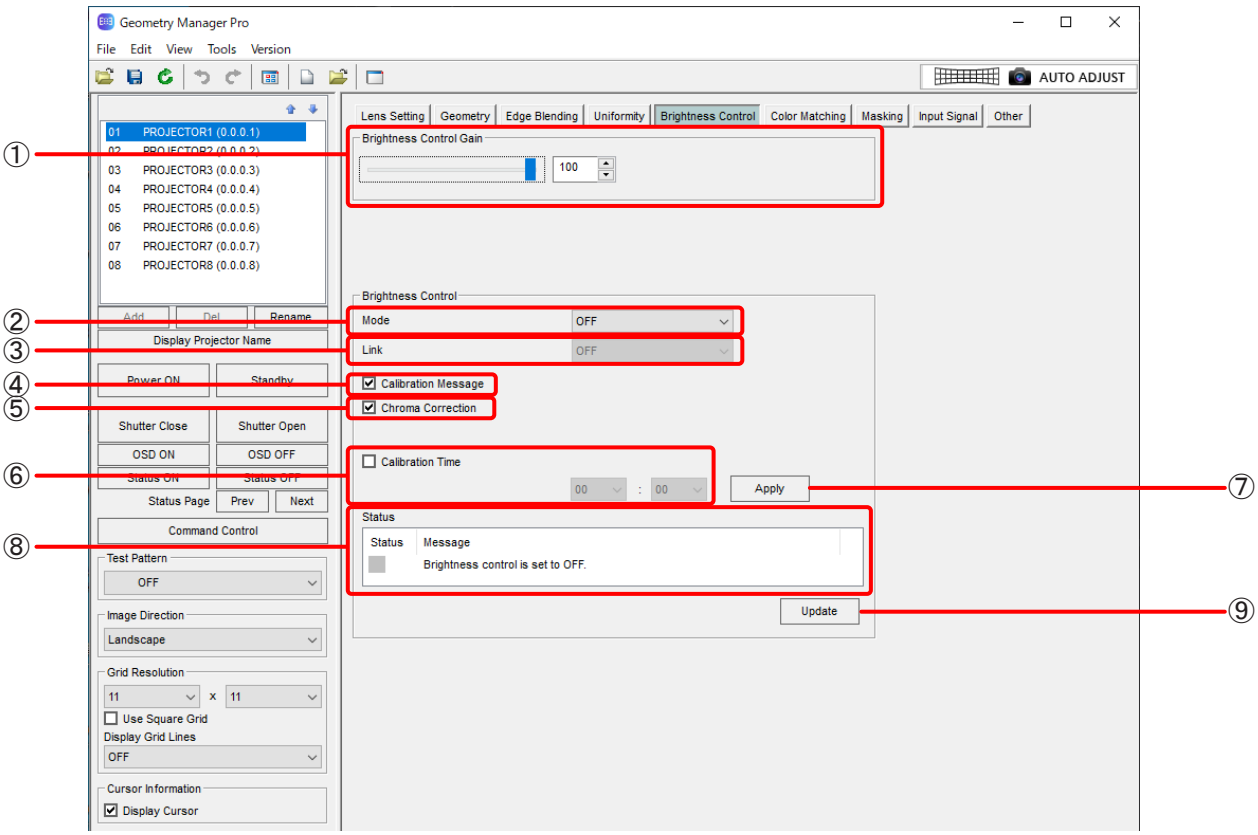
6 **Repeat the above steps when you want to apply correction to multiple target areas.**

Where the target areas overlap, correction will be applied by multiplying the respective settings.

Brightness Control

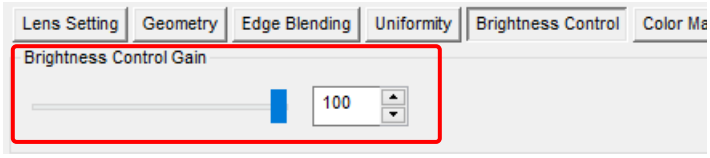
When a single image is configured using a multiple number of projectors, the brightness levels of the images projected from the projectors may not be consistent. If this is the case, adjust the projectors so that the brightness levels are made consistent.
Brightness correction can also be made automatically at periodic intervals with some projectors.
This may be disabled depending on the model.

Brightness Control / Brightness Setting screen



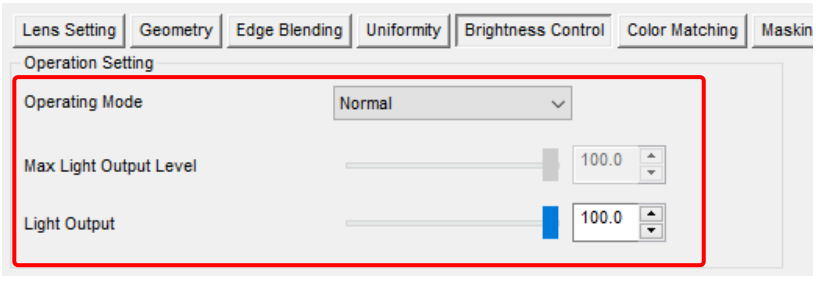
① **The items displayed will vary depending on the projector you are using.**

Brightness Control Gain



This is where the projector brightness is set.
The brightness of the image projected from the projectors is set according to the numerical value that is set here.

Operating Mode



This is where the operating mode of the projector is set.

High:
This reduces the life of the light source more than Normal, but select this when a higher level of brightness than Normal is required.

Normal:
Select this when a high level of brightness is required.

Eco:
This mode produces a lower brightness than in [Normal] mode, but extends the life of the light source.

Quiet/Quiet1/Quiet2:
These modes produce a lower brightness than in [Normal] mode, but set them when prioritizing operation with low noise.

Long Life1/Long Life2/Long Life3:
These modes produce a lower brightness than in [Eco] mode, but extend the life of the light source.

User1/User2/User3:
These modes allow you to configure separate [Max Light Output Level] and [Light Output] settings.

For details, refer to the operating instructions of the projector.

Max Light Output Level
This allows you to adjust the upper limit for brightness correction of the screen based on the change in brightness of the light source.
Some models do not support this function.

Light Output
This allows you to adjust the brightness of the light source.

② **Mode**
This is where the brightness correction mode is selected.
Some models do not support this function.

OFF:
The brightness is not corrected.

Auto:
The brightness levels of the images projected from the projectors are corrected by the brightness sensors of the projectors.
For details, refer to the operating instructions of the projectors concerned.

PC:
The brightness levels of the images projected from the projectors are corrected using the “Multi Monitoring & Control Software”.
For details, refer to the Operating Instructions of “Multi Monitoring & Control Software”.

③ **Link**
This is where the link mode is set.
The mode is enabled when [Auto] has been selected as the Mode setting.
Some models do not support this function.

OFF:
The brightness level of the selected projector is corrected.

Group A/Group B/Group C/Group D:
The brightness levels of the projectors in the respective group are corrected.
The groups are set using the network function of the projectors.
For details, refer to the operating instructions of the projectors.

④ **Calibration Message**
When a check mark is entered for ☑ Calibration Message , a message is displayed while measuring the brightness levels for correcting the brightness.
This may be disabled depending on the model.

⑤ Chroma Correction

When a check mark is entered for ☑ Chroma Correction , color is adjusted together with brightness.
This may be disabled depending on the model.

⑥ Calibration Time

The time at which to start measuring the brightness levels for correcting the brightness is selected here.

The time can be set when a check mark is entered for ☑ Calibration Time .
This may be disabled depending on the model.

⑦ Apply

Click this to reflect the brightness correction setting on the projector.

If Mode is set to OFF, brightness correction ends. In other cases, brightness correction is executed.

With some models, you can select whether to re-execute brightness correction with the settings used last time or newly execute brightness correction with the current settings.

Some models do not support this function.

⑧ Status

This displays the brightness correction-related status.

Some models do not support this function.

Status	Message	Description
Red	Brightness sensor error	Something is wrong with the brightness sensor (projector).
	Cannot apply Brightness Control. Please check projector status.	The brightness cannot be corrected due to a factor that is not related to the brightness sensor.
Yellow	The brightness can no longer be corrected by a significant margin.	The brightness that can be corrected by the projector is reaching its limit.
Green	No Error	Normal condition.
Gray	Brightness Control is set to OFF.	The brightness control is set to off.
	The projector is standby or cooling.	The power of the projector is in standby state or cooling.

⑨ Update

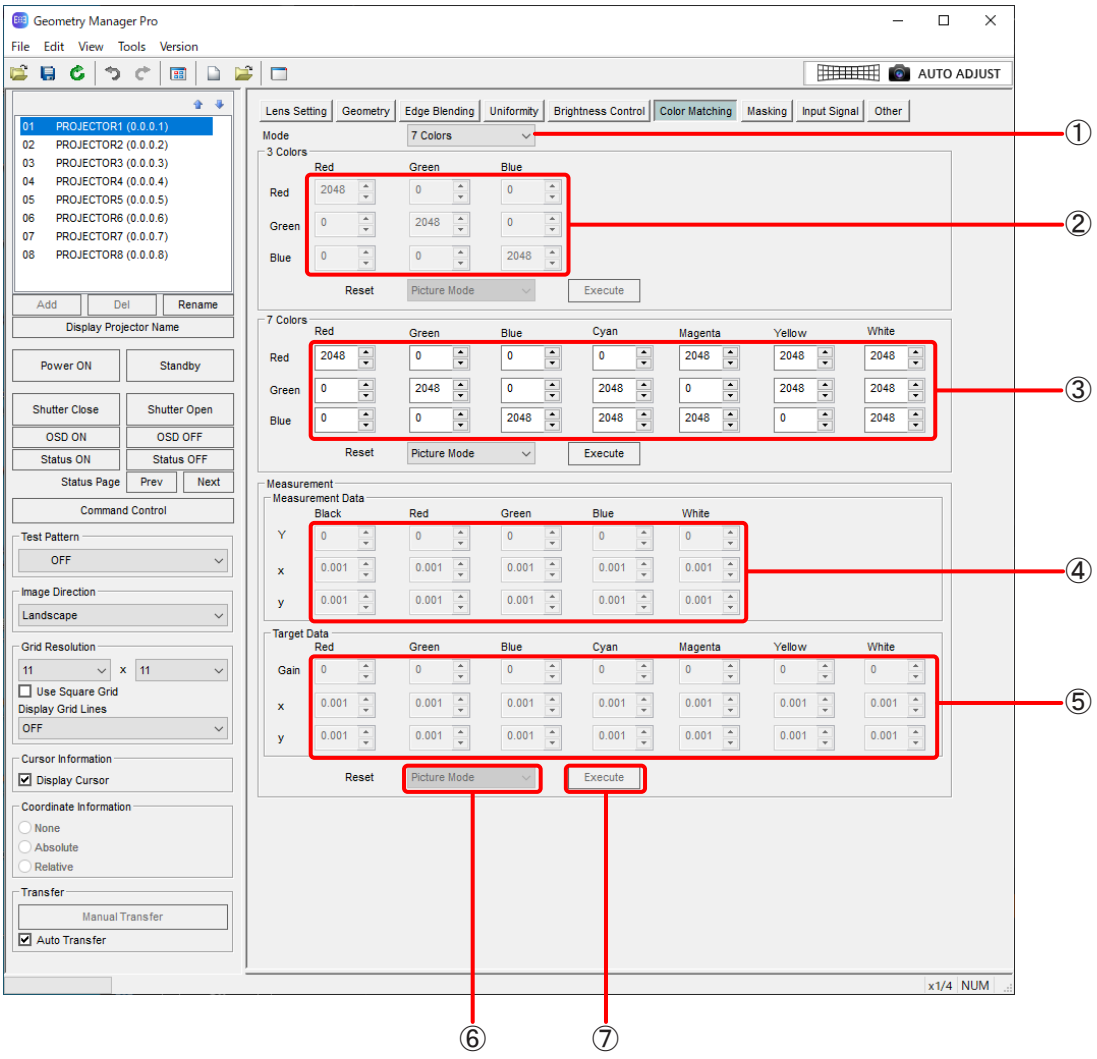
Click this button to check the projectors and update the Status displays.

Some models do not support this function.

Color Matching / Color Adjustment

When configuring a single image using a multiple number of projectors, the coloring of the image projected from the various projectors may not be consistent. If this is the case, adjust the projectors to match the coloring.
This may be disabled depending on the model.

Color Matching / Color Adjustment screen



Note

The items that can be adjusted, setting details, and setting range vary depending on the model.

① **Mode**

The color matching mode is selected here.

OFF

Color matching is not performed.

3 Colors

The inconsistencies in the colors are corrected by adjusting three colors (Red, Green and Blue).

7 Colors

The inconsistencies in the colors are corrected by adjusting seven colors (Red, Green, Blue, Cyan, Magenta, Yellow and White).

709 Mode

The brightness (Y) and chrominance coordinate (x, y) values are adjusted here based on the values obtained using a coloring chromoscope capable of measuring chrominance coordinates and brightness levels.
The Target Data values are fixed.
709 Mode cannot be selected for some models. For details, refer to the Operating Instructions of the projector.

Measured

The brightness (Y) and chrominance coordinate (x, y) values are adjusted here based on the values obtained using a coloring chromoscope capable of measuring chrominance coordinates and brightness levels.
The Target Data values can be adjusted.
Selecting [Measured] may not be possible depending on the model. For details, refer to the Operating Instructions of the projector.

② **3 Colors**

The Red, Green and Blue values are set here.
The settings take effect when [3 Colors] has been selected as the Mode setting.
The White value can be set in addition to the Red, Green and Blue values for some models.

③ **7 Colors**

The Red, Green, Blue, Cyan, Magenta, Yellow and White values are set here.
The settings take effect when [7 Colors] has been selected as the Mode setting.

④ **Measurement Data**

The Black, Red, Green, Blue and White values are set here.
The settings take effect when [709 Mode] or [Measured] has been selected as the Mode setting.

⑤ **Target Data**

The Red, Green, Blue, Cyan, Magenta, Yellow and White values are set here.
The settings take effect when [Measured] has been selected as the Mode setting.

⑥ **Reset**

Each adjustment item of the color matching mode is reset here.
Picture Mode: Set each adjustment item to the factory default color value of the currently selected picture mode.
Native: Set each adjustment item to the uncorrected value.
Rec.709: Set each adjustment item to the Rec.709 equivalent value.

Note

This function can be used only for projectors that have this function.

⑦ **Execute**

Click this to reflect the reset settings in the projector and update the values of the color matching mode.

Note

This function can be used only for projectors that have this function.

Masking

Two kinds of masking are available.
To use this function, the upgrade kit (ET-UK20) must be applied on the selected projector.
☞ “Activation” (page 12)
Some models do not support this function.

■ Line Masking

The shape to be masked is set by moving the operation points on the four sides–top, bottom, left and right–of the projected image.
The area to be masked can also be inverted between positive and negative.

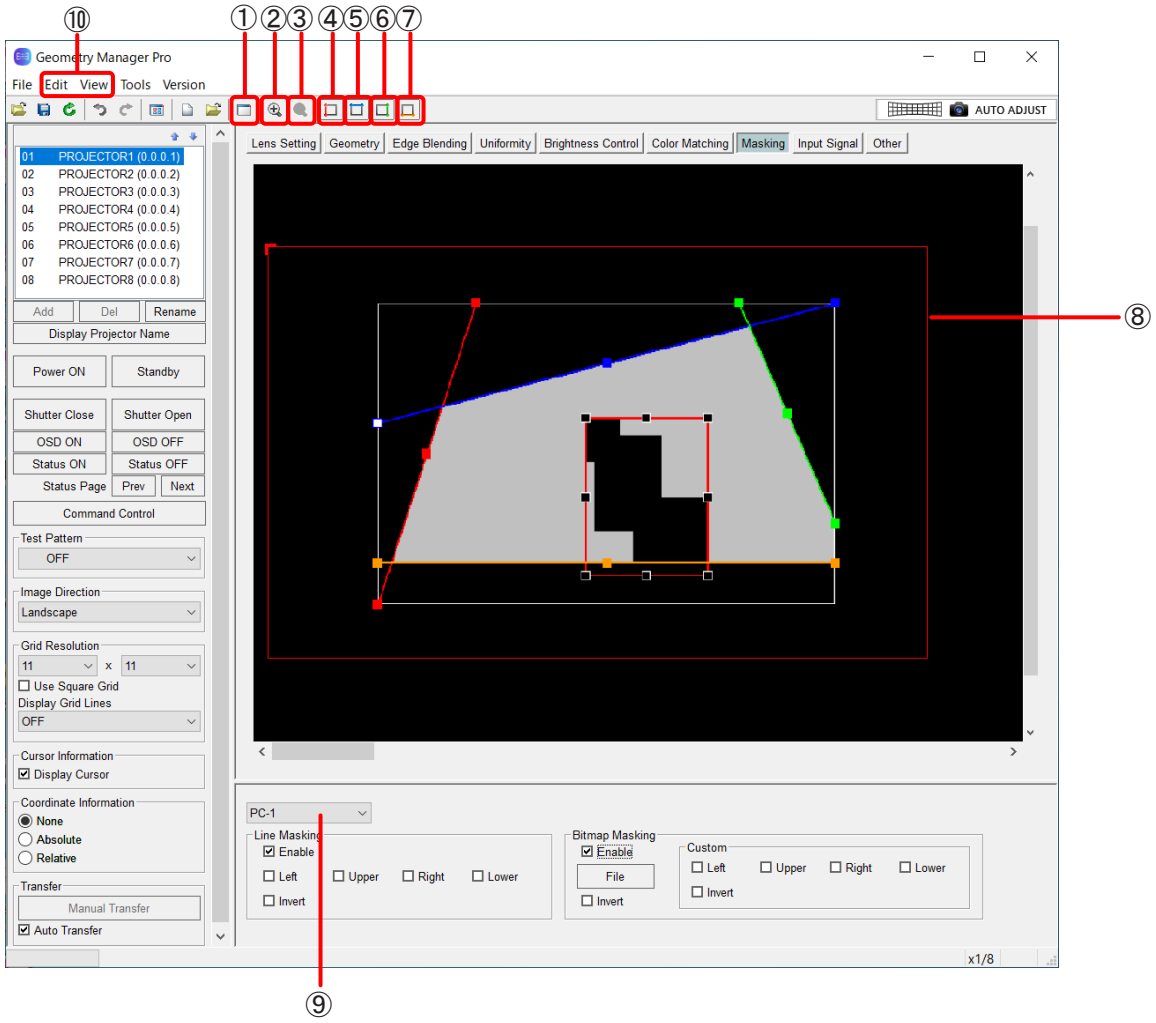
■ Bitmap Masking

The bitmap in the 1-bit monochrome format is loaded and set as the masking data.
The position and size of the masking can be changed.
Bitmaps from 8 x 8 pixels to 1920 x 1200 pixels (when the resolution of the projector is 1920 x 1200 dots or 1400 x 1050 dots) or 4096 x 2400 pixels (when the resolution is other than the aforementioned) are supported.
The *.bmp and *.dib file extensions are supported.
The shape to be masked is set by adding/moving the operation points on the four sides–top, bottom, left, and right–of the projected image.
The area to be masked can also be inverted between positive and negative.

Note

- The Line Masking and Bitmap Masking settings can be used simultaneously. In that case, masking applies to the each area set in the settings.
- When the input signal of the projector is changed, retransmission to the projector may be required.

Masking screen



① Sub Window

Each time this is clicked, the Sub Window screen is switched between displayed and cleared.

An image of the entire projection area is displayed on Sub Window.

- Sub Window display can also be switched between displayed and cleared for the sub window in the View sub window.

② Zoom In

Zooms in to the editing area.

③ Zoom Out

Zooms out the editing area.

④ Red

Selects whether the operation points on the left side of the projected image are to be displayed or not displayed.

- This performs the same operation as [Mask Marker] – [Red] on the View submenu.

⑤ Blue

Selects whether the operation points at the top of the projected image are to be displayed or not displayed.

- This performs the same operation as [Mask Marker] – [Blue] on the View submenu.

⑥ Green

Selects whether the operation points on the right side of the projected image are to be displayed or not displayed.

- This performs the same operation as [Mask Marker] – [Green] on the View submenu.

⑦ **Orange**

Selects whether the operation points at the bottom of the projected image are to be displayed or not displayed.

- This performs the same operation as [Mask Marker] – [Orange] on the View submenu.

⑧ **Editing Area**

Click the operation points to select them, and then drag them to form the shape that is to be masked.
The outmost red frame has an L-shaped mark to indicate the image orientation. This mark is shown at the upper left when the Image Direction setting is OFF, and the location where it is shown also moves depending on the Image Direction setting.

Right-clicking

Clicking the right-mouse button in the editing area displays a menu with following items.
Reset, Flip Vertical, Flip Horizontal, Bitmap Masking Custom

Reset, Flip Vertical, Flip Horizontal

The menu functions are the same as with the Edit submenu.
☞ “Edit submenu” (page 93)

Bitmap Masking Custom

Add/delete operation points on the sides with masking enabled in Custom of Bitmap Masking.

⑨ **Mode Switching**

OFF: Masking is not performed.
PC-1 / PC-2 / PC-3: Masking is enabled.

Note

When masking is enabled, only one piece of data (PC) can be saved for some models.

⑩ **Edit, View**

In addition to the menu items described in “Main menu” (page 38), the following menu items can be used on the Masking screen.

Edit submenu

Reset

When Line Masking has been performed, the positions of the operation points are returned to their initial statuses.
Returns to the status established when the bitmap has been loaded when Bitmap Masking is executed.

Flip Vertical

Click to flip vertically the correction status of the entire image.

Flip Horizontal

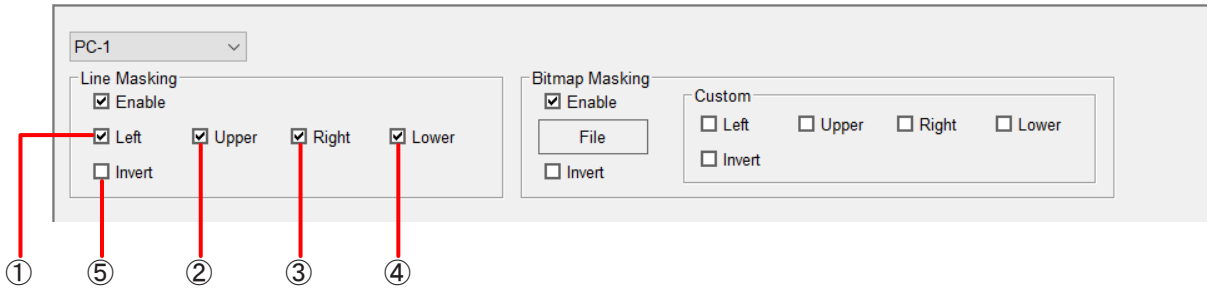
Click to flip horizontally the correction status of the entire image.

View submenu

Mask Marker (Red, Green, Blue, Orange)

Selects whether the operation points are to be displayed or not displayed.
The non-displayed operation points are fixed at the positions when the selection was made not to display them.

Line Masking



① Left

When a check mark is entered for Left, masking based on the operation point on the left side of the projected image is enabled.

② Upper

When a check mark is entered for Upper, masking based on the operation point at the top of the projected image is enabled.

③ Right

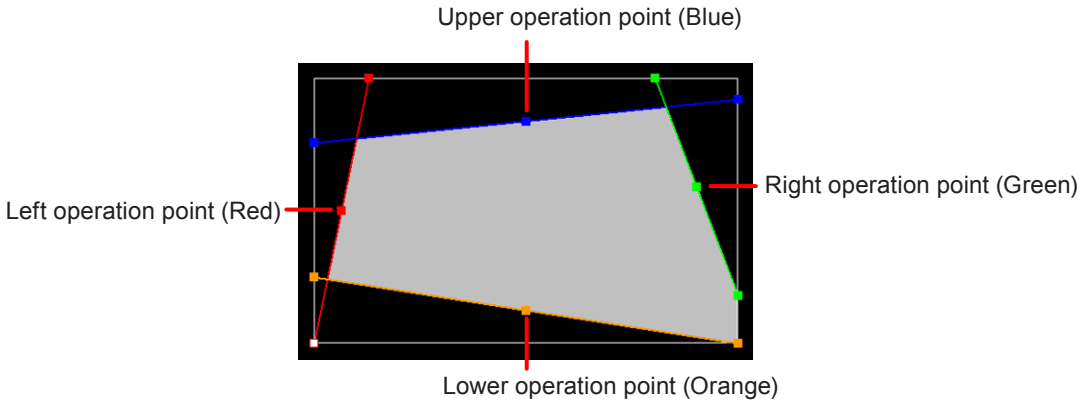
When a check mark is entered for Right, masking based on the operation point on the right side of the projected image is enabled.

④ Lower

When a check mark is entered for Lower, masking based on the operation point at the bottom of the projected image is enabled.

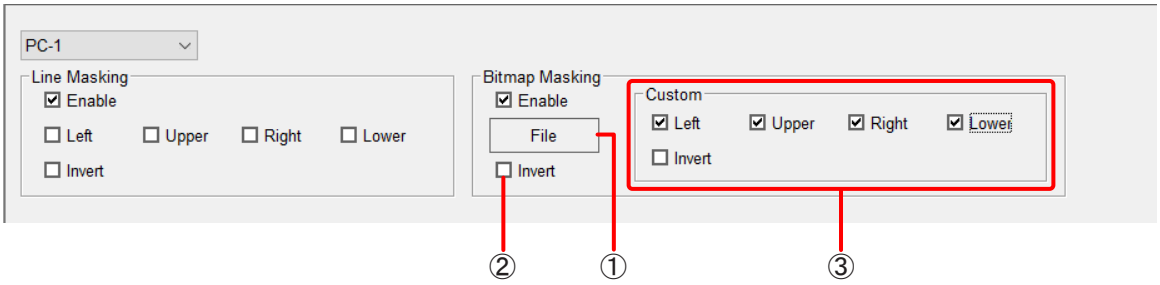
⑤ Invert

When a check mark is entered for Invert, the Line Masking area can be inverted between positive and negative.



The operation points positioned at both ends of each side can be moved only around the outer circumference (along the four sides–top, bottom, left, and right) of the projected image.
When an operation point at the center of a side is moved, it can be moved without changing the angle of the straight line that connects the operation points at both ends of the side.
When the operation points have been selected, they can also be moved by operating the cursor keys on the keyboard.

Bitmap Masking



① **File**

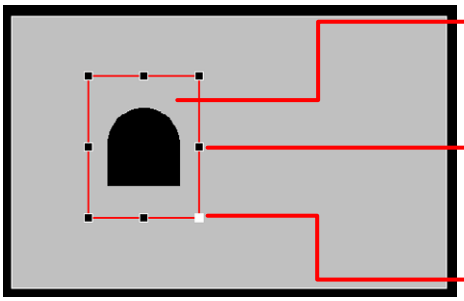
Click this button to open the screen on which to select the bitmap data used for masking.
Using the bitmap data which has been loaded, mouse operations can be used to move, enlarge or reduce the masking area.
The bitmap data can be moved, enlarged, or reduced in a display area with a resolution of 2880 x 1800 pixels (when the resolution of the projector is 1920 x 1200 dots or 1400 x 1050 dots) or 6144 x 3600 pixels (when the resolution is other than the aforementioned).

If [File] is clicked when the bitmap data for masking has already been loaded, the previously loaded bitmap data is discarded and the new loaded bitmap data is set for masking.

② **Invert**

When a check mark is entered for Invert , the Bitmap Masking area can be inverted between positive and negative.

Bitmap data (example)



Drag to move.

When the center point here is dragged, the masking area can be enlarged or reduced horizontally or vertically.

When a point in one of the four corners is dragged, the masking area can be enlarged or reduced without changing the aspect ratio.

③ **Custom**

The shape to be masked is set by adding/moving the operation points on the four sides–top, bottom, left, and right–of the projected image.

Left:

When a check mark is entered for ☑ Left , masking based on the operation point on the left side of the projected image is enabled.

Upper:

When a check mark is entered for ☑ Upper , masking based on the operation point at the top of the projected image is enabled.

Right:

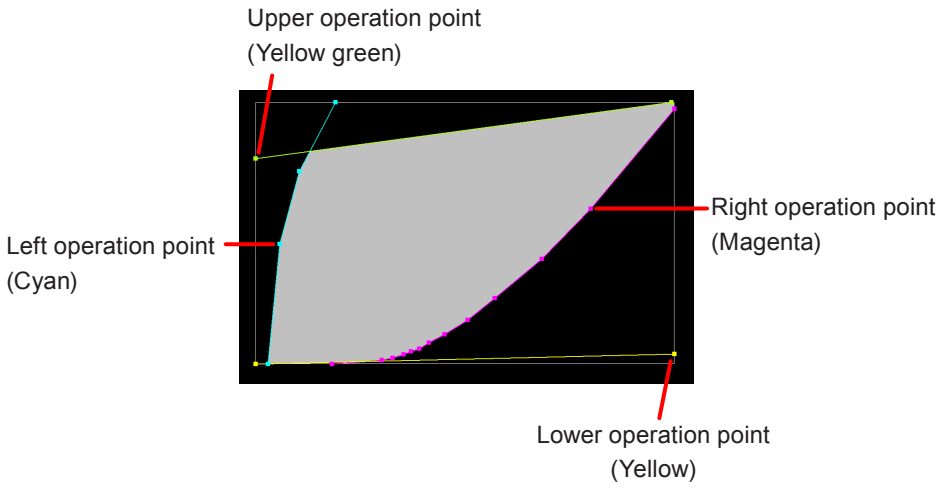
When a check mark is entered for ☑ Right , masking based on the operation point on the right side of the projected image is enabled.

Lower:

When a check mark is entered for ☑ Lower , masking based on the operation point at the bottom of the projected image is enabled.

Invert:

When a check mark is entered for ☐ Invert , the Bitmap Masking Custom area can be inverted between positive and negative.

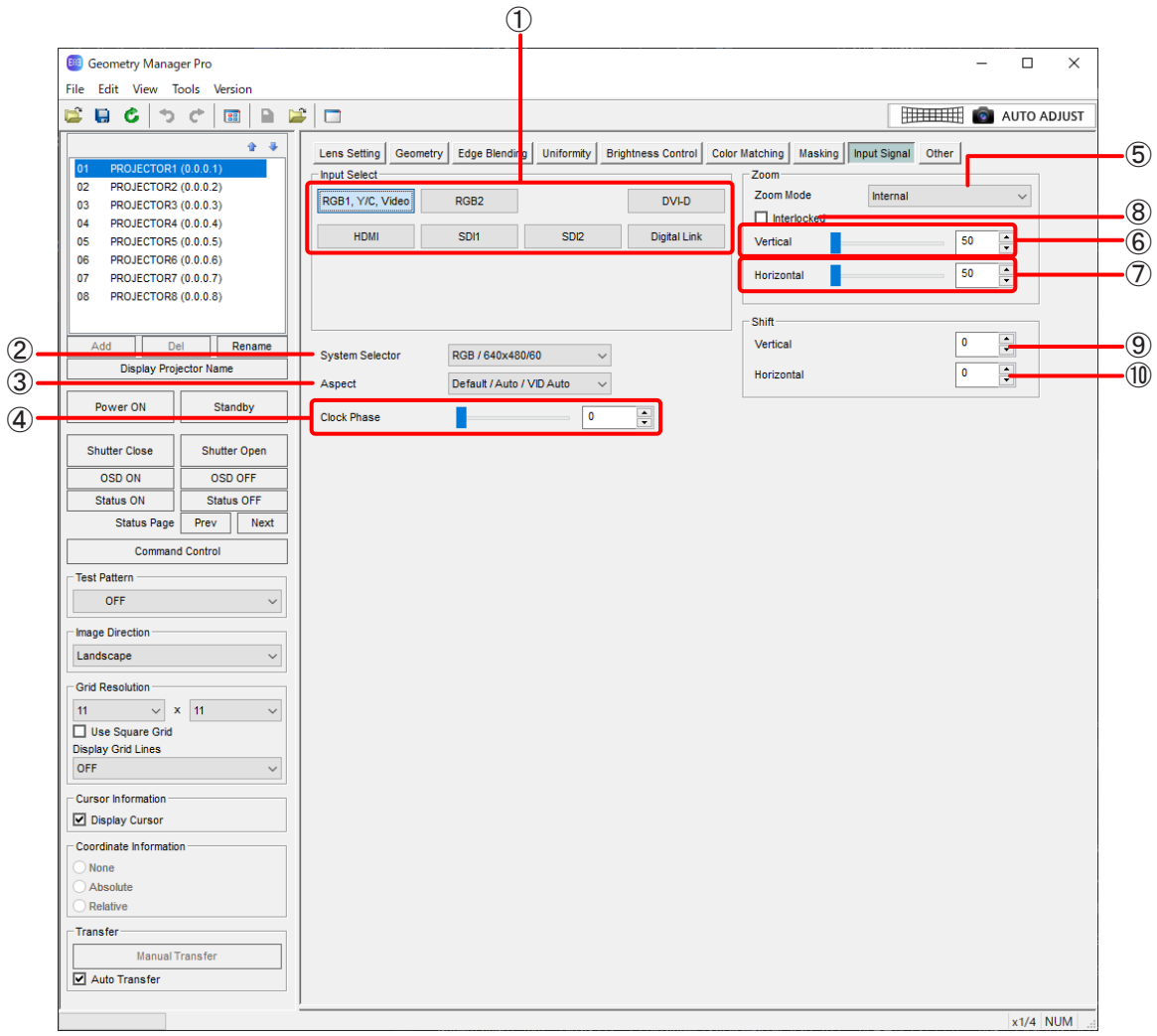


The operation points positioned at both ends of each side can be moved only around the outer circumference (along the four sides–top, bottom, left, and right) of the projected image.
If you right-click on a side and then select [Add Point], you can add an operation point (a maximum of 15 operation points can be added per side).
To delete an added operation point, right-click it and select [Delete Point].

Input Signal Adjustments

Projectors normally identify the input signals automatically, but if unstable signals are to be input, this software application allows the format matching the input signals to be selected, position adjustments to be made, and so on by manual means. This may be disabled depending on the model.

Input Signal screen



① **Input Select**

These are used to select the input.

Click the input (selector) button of the signals to be projected.

The inputs that can be selected vary depending on the model. For a model equipped with slots, the buttons are enabled only for the slots with boards inserted, and the inputs that can be selected are displayed on the buttons.

This operation is reflected in the projector even if a check mark has not been entered for Auto Transfer.

Note

For a model equipped with slots, if a change such as adding or deleting a board is made while connected to the corresponding projector from this software, the board state cannot be reflected correctly.
In this case, the state will be reflected correctly if you perform one of the following operations.

- Execute [Reload] from the menu.
- Change to another tab and then select this tab again.
- Select another projector and then select this projector again.
- Restart this software and then connect with the corresponding projector.
- Delete the corresponding projector from this software and then add it again.

② System Selector

The system format which matches the input signals is selected here.
The formats which can be selected differ depending on the projector model, input signals and input connectors.

Input Select	System Selector	
RGB1, Y/C or RGB1, Y/C, Video	When [RGB/YPbPr] is selected*1	When [Y/C] or [Video] is selected*1
	RGB / VGA60 YCbCr / YPbPr / 480p YCbCr 480p RGB RGB / 640x480/60p YCbCr / YPbPr / 480/60p YCbCr 480/60p RGB	Auto NTSC NTSC4.43 PAL PAL-M PAL-N SECAM PAL60
RGB1, RGB2 or Computer	RGB / VGA60 YCbCr / YPbPr / 480p YCbCr 480p RGB RGB / 640x480/60p YCbCr / YPbPr / 480/60p YCbCr 480/60p RGB	
Video	Auto NTSC NTSC4.43 PAL PAL-M PAL-N SECAM PAL60	
DVI-D	RGB YCbCr / YPbPr	
HDMI	Auto RGB YCbCr / YPbPr	
Digital Link	Auto RGB YCbCr / YPbPr	

Input Select	System Selector		
SDI1 or SDI	When [Single Link] is selected*2	When [Dual Link] is selected*2	When [Auto] is selected*2
	Auto 480i YCbCr 480/60i YCbCr 576i YCbCr 576/50i YCbCr 720/50p YPbPr 720/60p YPbPr 1035/60i YPbPr 1080/24p YPbPr 1080/24sF YPbPr 1080/25p YPbPr 1080/30p YPbPr 1080/50i YPbPr 1080/60i YPbPr 1080/50p YPbPr 1080/60p YPbPr 1080/24p RGB 1080/24sF RGB 1080/25p RGB 1080/30p RGB 1080/50i RGB 1080/60i RGB 2K/24p RGB 2K/25p RGB 2K/30p RGB 2K/48p RGB 2K/50p RGB 2K/60p RGB	Auto 1080/24p RGB 2K/24p RGB 2K/24p XYZ 1080/24sF RGB 2K/24sF RGB 2K/24sF XYZ 1080/25p RGB 1080/30p RGB 1080/50i RGB 1080/60i RGB 1080/50p RGB 1080/60p RGB 1080/50p YPbPr 1080/60p YPbPr 2K/48p RGB 2K/50p RGB 2K/60p RGB 2K/48p YPbPr 2K/50p YPbPr 2K/60p YPbPr	Auto
SDI2	When [Single Link] is selected*2	When [Dual Link] is selected*2	When [Auto] is selected*2
	Auto 480i YCbCr 576i YCbCr 720/50p YPbPr 720/60p YPbPr 1035/60i YPbPr 1080/24p YPbPr 1080/24sF YPbPr 1080/25p YPbPr 1080/30p YPbPr 1080/50i YPbPr 1080/60i YPbPr 1080/50p YPbPr 1080/60p YPbPr 1080/24p RGB 1080/24sF RGB 1080/25p RGB 1080/30p RGB 1080/50i RGB 1080/60i RGB	Auto 1080/24p RGB 2K/24p RGB 2K/24p XYZ 1080/24sF RGB 2K/24sF RGB 2K/24sF XYZ 1080/25p RGB 1080/30p RGB 1080/50i RGB 1080/60i RGB 1080/50p RGB 1080/60p RGB 1080/50p YPbPr 1080/60p YPbPr 2K/48p RGB 2K/50p RGB 2K/60p RGB 2K/48p YPbPr 2K/50p YPbPr 2K/60p YPbPr	Auto

*1 In the Other screen, select with [Display Option] - [RGB In] - [RGB1 Input Setting].

*2 In the Other screen, select with [Display Option] - [SDI In] - [SDI Link].

☞ “Display Option” (page 106)

Note

- For models that do not support dual link HD-SDI signals, the system format that can be selected when [SDI1], [SDI], or [SDI2] is selected with [Input Select] is the same as for [Single Link].
- Even if an [Input Select] button shown in the table above is selected, the function may be disabled depending on the projector you are using.

③ **Aspect**

The aspect ratio of the images is selected here. The aspect ratios that can be selected are listed below:

- **Default / Auto / VID Auto**
- **Through**
- **16:9**
- **4:3**
- **H FIT**
- **V FIT**
- **HV FIT**

For details, refer to the operating instructions of the projectors.

④ **Clock Phase**

Image flickering and contour blurring are adjusted here.
Input value range: 0 to 31
However, they cannot be adjusted when Y/C signals have been selected as the input signals.
For details, refer to the operating instructions of the projectors.

⑤ **Zoom Mode**

The zoom mode is selected here.
The setting is enabled when [Default / Auto / VID Auto] has been selected as the Aspect setting.
The modes that can be selected are listed below:

- **Internal**
- **Full**

For details, refer to the operating instructions of the projectors.

⑥ **Vertical (Zoom)**

The zoom magnification in the vertical direction is set here.
Input value range: 50 to 999

⑦ **Horizontal (Zoom)**

The zoom magnification in the horizontal direction is set here.
Input value range: 50 to 999

⑧ **Interlocked**

When a check mark is entered for ☑ Interlocked , the same zoom magnification can be set in both the horizontal and vertical directions.

⑨ **Vertical (Shift)**

The vertical position of the projected image is set here.
The input value range varies depending on the projector model.

⑩ **Horizontal (Shift)**

The horizontal position of the projected image is set here.
The input value range varies depending on the projector model.

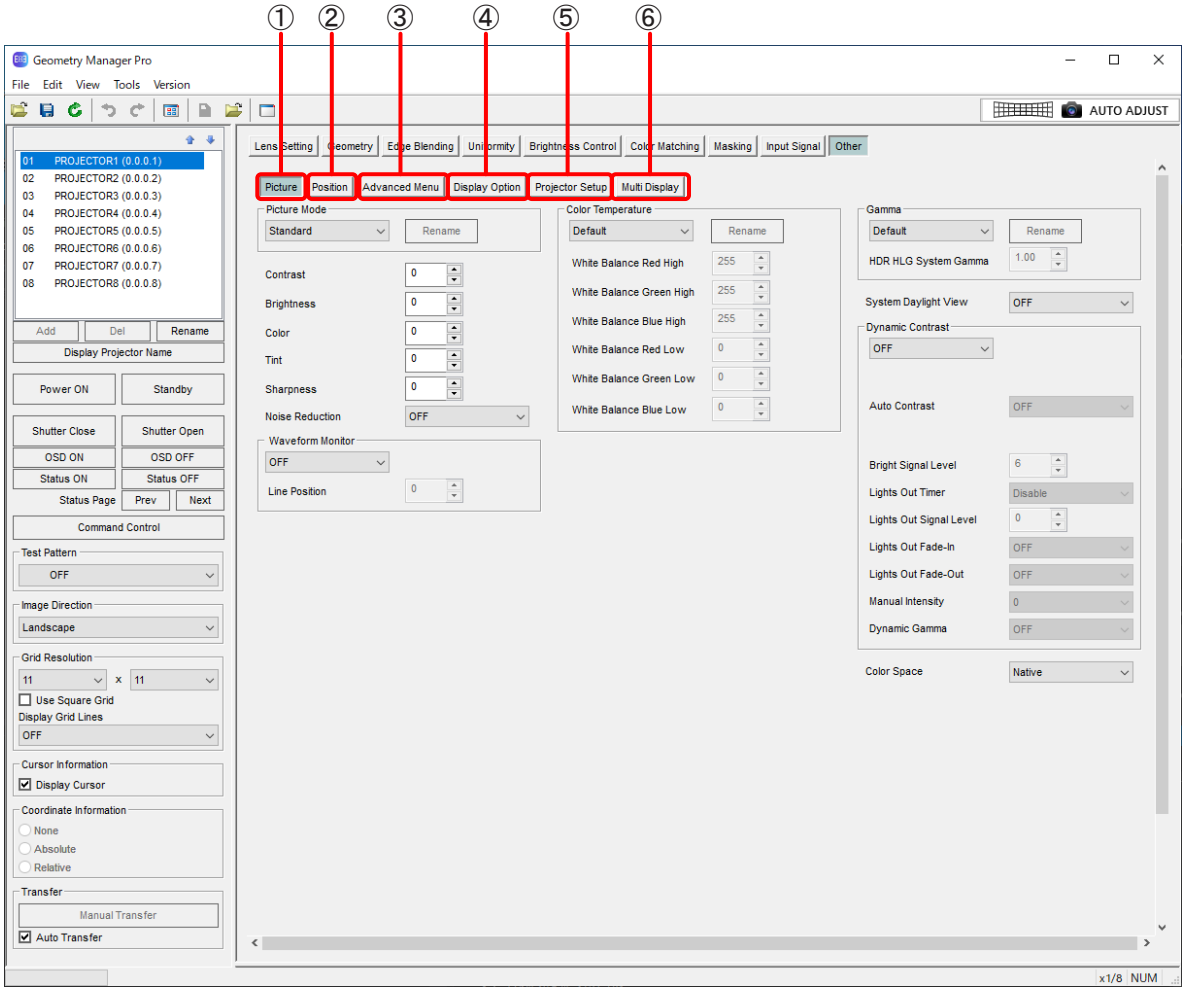
Note

The Input Signal screen items cannot be reset with the [Reset Data (Current Tab)] command on the File submenu and icon menu.

Projector Menu Settings

Some of the operations using the projector's menus can be performed using this software application.
This may be disabled depending on the model.

Other screen



① **Picture**

Click to display the Picture screen.
The video mode, black level and other settings related to the image adjustments can be selected.

② **Position**

Click to display the Position screen.
The convergence settings can be selected.

Note

This function can be used only for projectors that have this function.

③ **Advanced Menu**

Click to display the Advanced Menu screen.
The blanking width, input resolution and other settings can be selected.

④ **Display Option**

Click to display the Display Option screen.
The color correction, aspect ratio and other settings related to the image display used for large screens can be selected.

⑤ **Projector Setup**

Click to display the Projector Setup screen.
The projector's projection system, lamp selection and other hardware settings can be established.

⑥ **Displayed when the projector you are using has the corresponding function.**

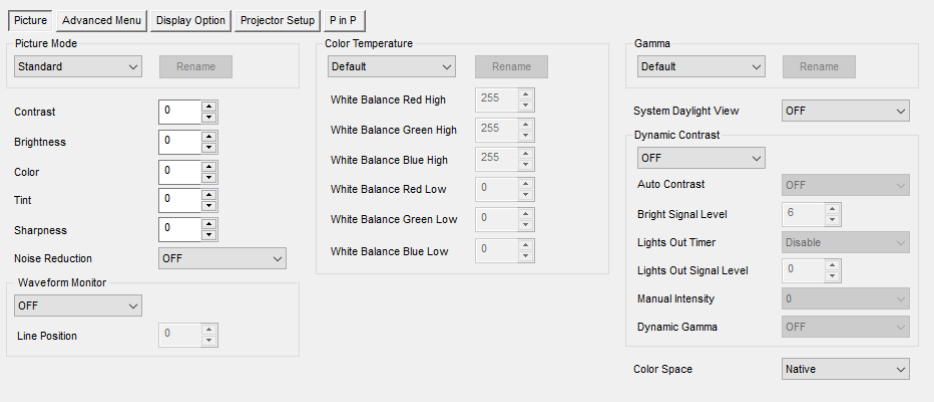
P in P

Click to display the P in P screen.
The positions and sequence of priority for the main screen and sub screens as well as other P in P functions can be set.

Multi Display

The inputs for 4-split display, frame lock, and other settings for the multi screen function can be set.

■ Picture



The following items can be set:

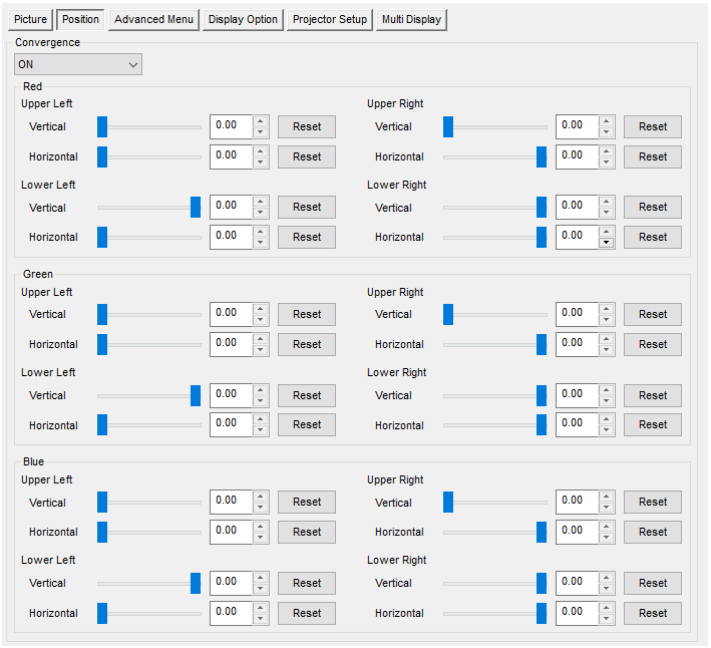
Picture Mode **	**Dynamic Contrast**
Contrast	**Contrast Mode**
Brightness	**Auto Contrast**
Color	**Brilliant Correction**
Tint	**Bright Signal Level**
Sharpness	**Lights Out Timer**
Noise Reduction	**Lights Out Signal Level**
Waveform Monitor	**Lights Out Fade-In**
Line Position	**Lights Out Fade-Out**
Default Picture Mode	**Manual Intensity**
Color Temperature	**Dynamic Gamma**
White Balance Red High	**Dynamic Contrast NX**
White Balance Green High	**Auto Contrast**
White Balance Blue High	**Bright Signal Level**
White Balance Red Low	**Lights Out Timer**
White Balance Green Low	**Lights Out Signal Level**
White Balance Blue Low	**Lights Out Fade-In**
Gamma	**Lights Out Fade-Out**
System Daylight View	**Manual Intensity**
Dynamic Iris	**Dynamic Gamma**
Auto Iris	**AI**
Manual Iris	**White Gain**
Dynamic Gamma	**Color Space**

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

- Items marked ** are reflected in the projector even when a check mark has not been entered in Auto Transfer.
- The Picture screen items cannot be reset using the [Reset Data (Current Tab)] command on the File submenu and icon menu.

■ Position



The following items can be set:

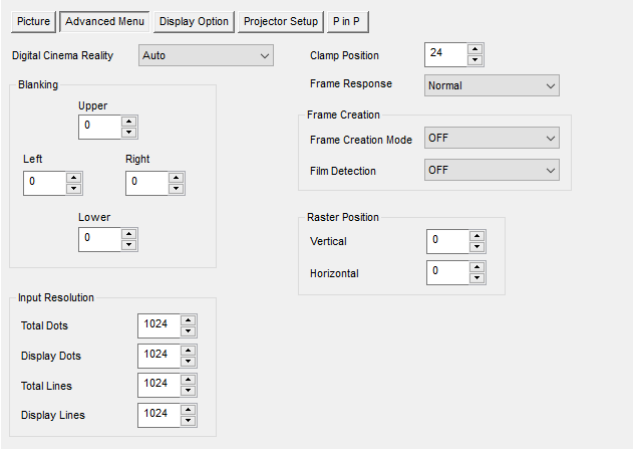
Convergence **Red** **Upper Left** **Vertical** **Horizontal** **Upper Right** **Vertical** **Horizontal** **Lower Left** **Vertical** **Horizontal** **Lower Right** **Vertical** **Horizontal**	**Green** **Upper Left** **Vertical** **Horizontal** **Upper Right** **Vertical** **Horizontal** **Lower Left** **Vertical** **Horizontal** **Lower Right** **Vertical** **Horizontal**	**Blue** **Upper Left** **Vertical** **Horizontal** **Upper Right** **Vertical** **Horizontal** **Lower Left** **Vertical** **Horizontal** **Lower Right** **Vertical** **Horizontal**

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

- The Position screen items cannot be reset using the [Reset Data (Current Tab)] command on the File submenu and icon menu.

■ Advanced Menu



The following items can be set:

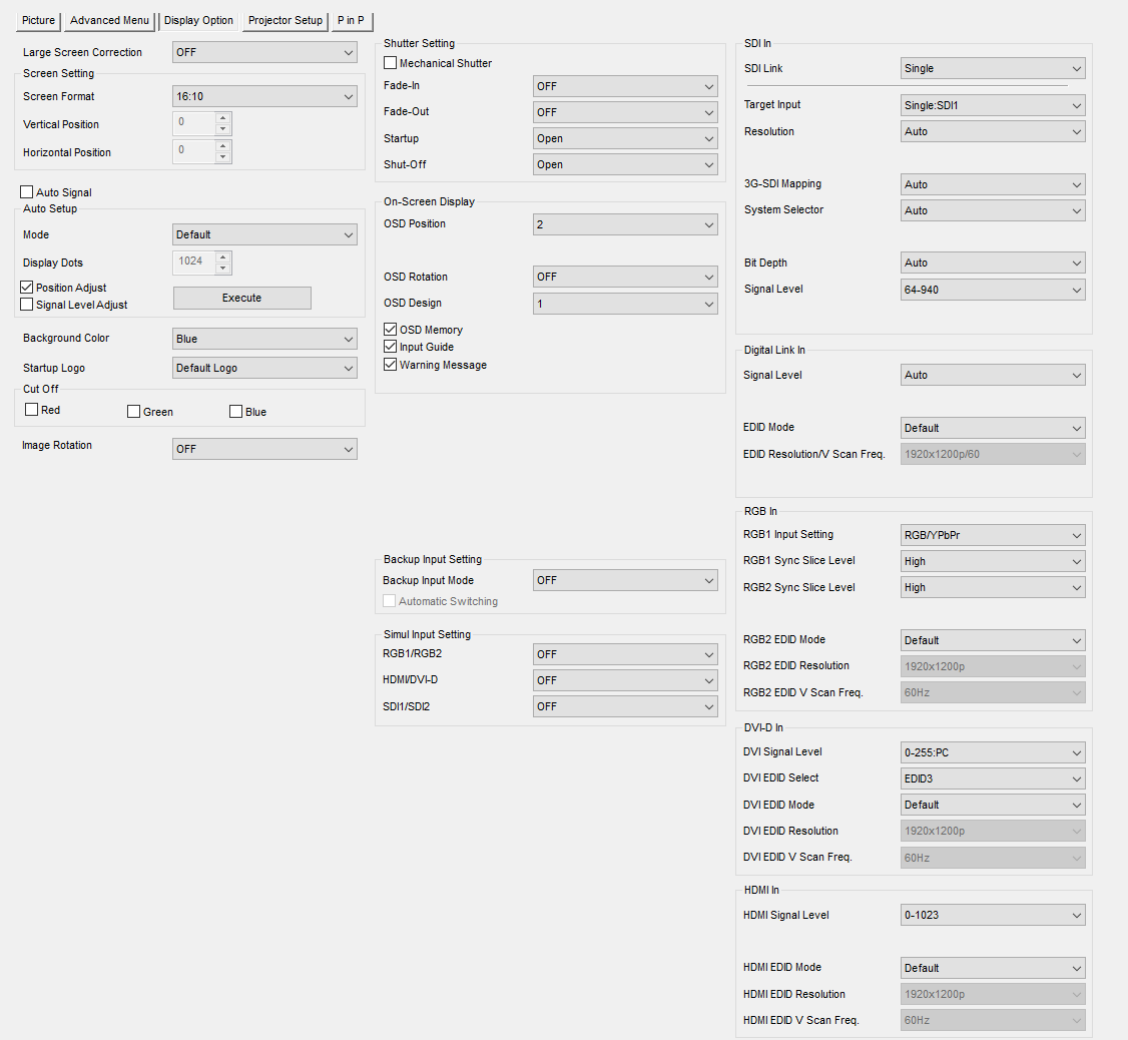
Digital Cinema Reality	**Clamp Position**
Gradation Smoother	**Frame Response**
Blanking	**Frame Delay**
Upper	**Frame Creation**
Left	**Frame Creation Mode**
Right	**Film Detection**
Lower	**Frame Lock**
Input Resolution	**Raster Position**
Total Dots	**Vertical**
Display Dots	**Horizontal**
Total Lines	**Quad Pixel Drive**
Display Lines	**Smooth Pixel Drive**

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

The Advanced Menu screen items cannot be reset using the [Reset Data (Current Tab)] command on the File submenu and icon menu.

■ Display Option



The settings of the items listed below can be established and operated.

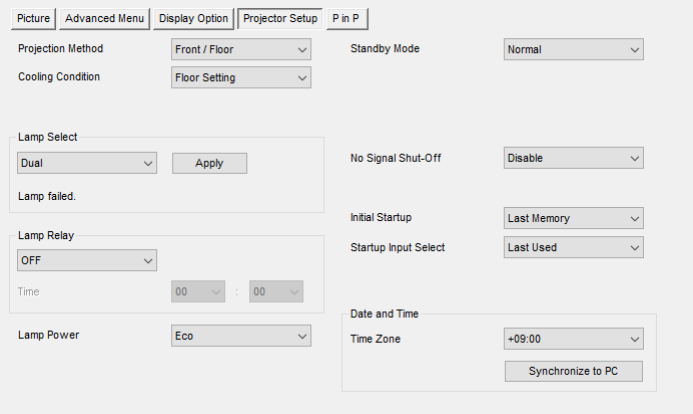
- Large Screen Correction
- Screen Setting
  - Screen Format
  - Vertical Position *
  - Horizontal Position *
  - Screen Marker
    - Upper
    - Lower
    - Left
    - Right
- Auto Signal
- Auto Setup
  - Mode
  - Display Dots *
  - Position Adjust
  - Signal Level Adjust
  - Execute
- Background Color
- Startup Logo
- Cut Off
  - Red
  - Green
  - Blue
- Image Rotation
- Closed Caption Setting
- Shutter Setting
  - Mechanical Shutter
  - Fade-In
  - Fade-Out
  - Startup
  - Shut-Off
- On-Screen Display
  - OSD Position
  - OSD Size
  - OSD Rotation
  - OSD Design
  - OSD Memory
  - Input Guide
  - Warning Message
- Color Correction
  - Red
  - Green
  - Blue
  - Cyan
  - Magenta
  - Yellow
- Backup Input Setting
  - Backup Input Mode
  - Automatic Switching
- Simul Input Setting
  - RGB1/RGB2
  - HDMI/DVI-D
  - SDI1/SDI2
  - SDI In
  - Slot In
- SDI In
  - SDI Link
  - SDI1 Signal Level
  - SDI1 Bit Depth
  - SDI1 3G-SDI Mapping
  - SDI2 Signal Level
  - SDI2 Bit Depth
  - SDI2 3G-SDI Mapping
  - Dual Link Signal Level
  - Dual Link Bit Depth
  - Dual Link 3G-SDI Mapping
  - Target Input
  - (The selection options of the following adjustment items vary depending on the selected setting.)
  - Resolution
  - 4K Division
  - 3G-SDI Mapping
  - System Selector
  - Color Space
  - Sampling
  - Bit Depth
  - Signal Level
- Digital Link In
  - Digital Link Signal Level
  - Digital Link EDID Select
  - Digital Link EDID Mode
  - Digital Link EDID Resolution
  - Digital Link EDID V Scan Freq.
  - Signal Level
  - Auto Gamma Select
  - Auto Color Space Select
  - EDID Select
  - EDID Mode
  - EDID Resolution/V Scan Freq.
- RGB In
  - RGB Sync Slice Level
  - RGB EDID Resolution
  - RGB EDID V Scan Freq.
  - RGB1 Input Setting
  - RGB1 Sync Slice Level
  - RGB2 Sync Slice Level
  - RGB2 EDID Select
  - RGB2 EDID Mode
  - RGB2 EDID Resolution
  - RGB2 EDID V Scan Freq.
- Computer In
  - Computer Sync Slice Level
  - Computer EDID Mode
  - Computer EDID Resolution
  - Computer EDID V Scan Freq.
- DVI-D In
  - DVI EDID
  - DVI Signal Level
  - DVI EDID Select
  - DVI EDID Mode
  - DVI EDID Resolution
  - DVI EDID V Scan Freq.
- HDMI In
  - HDMI Signal Level
  - HDMI EDID Select
  - HDMI EDID Mode
  - HDMI EDID Resolution
  - HDMI EDID V Scan Freq.
- Slot In
  - Mode Select **
  - Link Select **
  - Link Setting ***
  - EDID Setting ***
  - Option Setting ***

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

- Items marked with an asterisk (*) cannot be reset using the [Reset Data (Current Tab)] command on the File submenu and icon menu.
- Items marked ** are switched automatically depending on whether a board is inserted in the slot and the type of board if a board is inserted.
- Items marked *** are switched automatically depending on setting of Link Select.

■ Projector Setup



The settings of the items listed below can be established and operated.

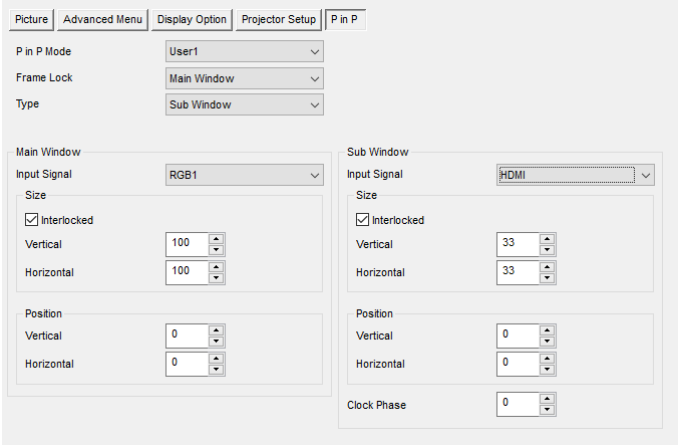
Projection Method **Cooling Condition** **High Altitude Mode** **Lamp Select *** **Lamp Relay** **Time** **Standby Mode** **Quick Startup** **Valid Period** **No Signal Shut-Off** **No Signal Lights-Off** **Initial Startup** **Startup Input Select** **AC Voltage Monitor** **Date and Time** **Time Zone *** **Synchronize to PC **** (The projector's clock setting is synchronized with the computer.)	**Multi Projector Sync** **Mode** **Contrast Sync** **Shutter Sync** **Terminal Select** **No Signal Setting** **Secondary Input** **Back Color** **No Signal Shut-Off** **No Signal Lights-Off** **Power Management** **No Signal Shut-Off** **No Signal Lights-Off**

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

- Items marked with an asterisk (*) cannot be reset using the [New All Data] and [New Data (For Current Window)] commands on the File submenu and icon menu.
- Items marked ** are reflected in the projector even when a check mark has not been entered in Auto Transfer.

■ P in P



The following items can be set:

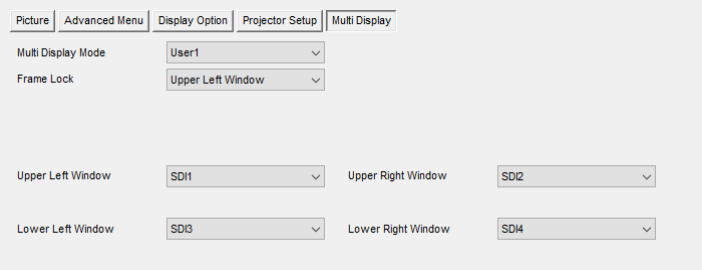
P in P Mode ** **Frame Lock** **Type** **Main Window** **Input Signal** **Size** **Interlocked** **Vertical** **Horizontal** **Position** **Vertical** **Horizontal**	**Sub Window** **Input Signal** **Size** **Interlocked** **Vertical** **Horizontal** **Position** **Vertical** **Horizontal** **Clock Phase**

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

Note

- Items marked ** are reflected in the projector even when a check mark has not been entered in Auto Transfer.
- The P in P screen items cannot be reset using the [Reset Data (Current Tab)] command on the File submenu and icon menu.

■ Multi Display



The following items can be set:

Multi Display Mode **
Frame Lock
Upper Left Window
Lower Left Window
Upper Right Window
Lower Right Window

The items that can be adjusted, setting details, and setting ranges vary depending on the projector model. Refer to the operating instructions of the projector.

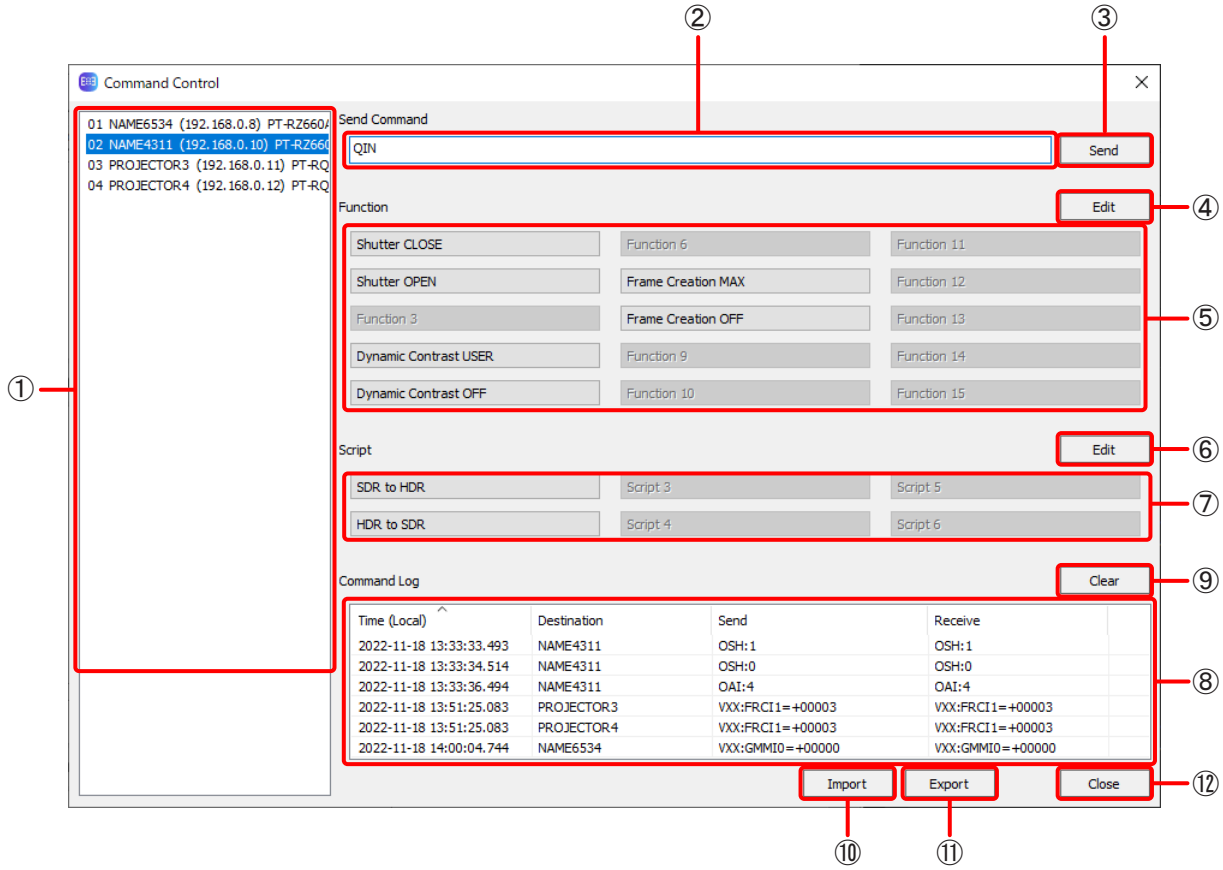
Note

- Items marked ** are reflected in the projector even when a check mark has not been entered in Auto Transfer.
- The Multi Display screen items cannot be reset with the [Reset Data (Current Tab)] command on the File submenu and icon menu.

Projector Control

Control commands can be sent to the projector.

Command Control screen



① **Projector list**

Displays a list of the numbers, projector names, IP addresses, and model numbers of the connected projectors.
The selected projector is the target for sending the command. The control command send target can be switched by selecting a projector in the list.

Note

- Multiple projectors can be selected by holding down the Ctrl key while clicking.

② **Command input**

Enter the control command to send.

③ **Send command**

Send the entered control command to the selected projector.

④ **Edit registered commands**

Up to 15 frequently used commands can be registered. Clicking opens the Edit screen.
Only a button with a command registered can be clicked.
The text to display on the button can also be edited in the Edit screen. If the text to display on the button is not edited, the default text ("Function*" where * is the number of the button) is displayed.

⑤ **Send registered commands**

Sends the registered commands to the selected projector.

⑥ **Edit registered scripts**
Up to 6 scripts of multiple consecutive commands (script) can be registered. Clicking opens the Edit screen for registered scripts.
Only a button with a script registered can be clicked.
The text to display on the button can be edited in the Edit screen for registered scripts. If the text to display on the button is not edited, the default text ("Script*":* where * is the number of the button) is displayed.

⑦ **Send registered scripts**
Sends the registered scripts to the selected projector.

⑧ **Command Log**
Displays the communication log for sent commands. This displays four information items: send time, send destination projector name, sent command, and response to sent command.
Each information item can be sorted in ascending and descending order.
The maximum number of logs that can be displayed is 2,048.

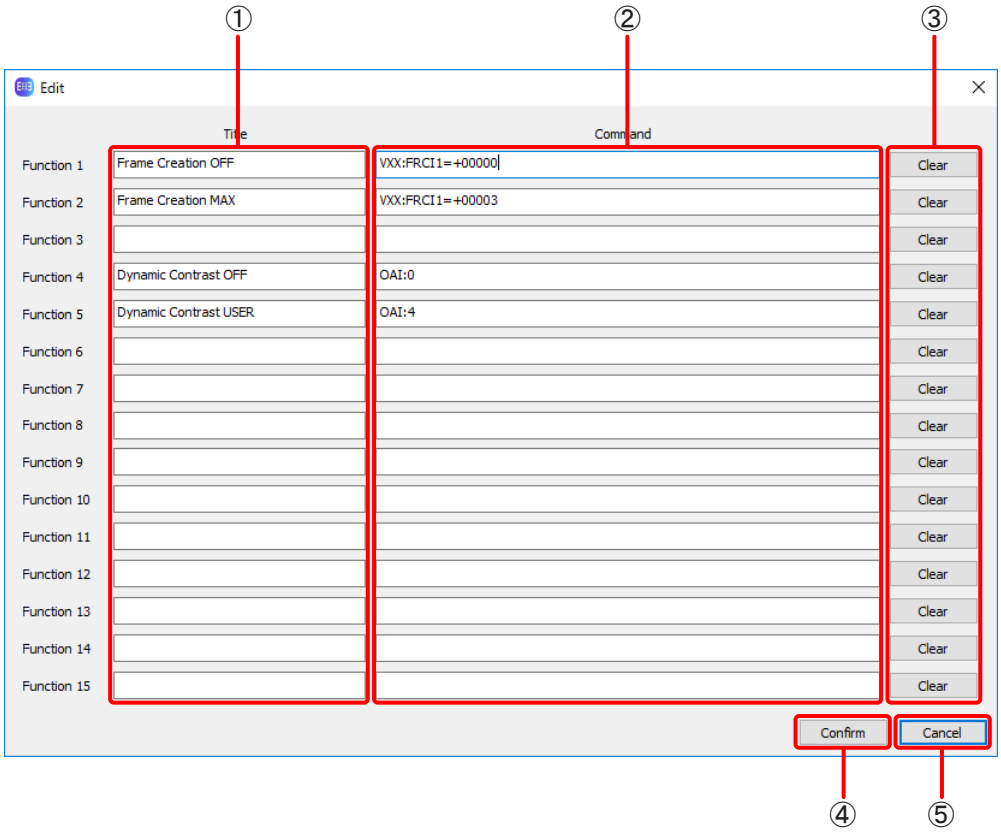
⑨ **Clear command log**
Clear the information displayed in the command log.

⑩ **Import**
Reads control command data from a file.

⑪ **Export**
Saves control command data to a file.

⑫ **Close**
Close this screen. The command log is also cleared when the screen is closed.

Edit screen



① **Title**
Enter the text to display on the registered command send buttons in the Command Control screen.
The text can consist of a maximum of 32 characters including letters, numbers, and symbols.

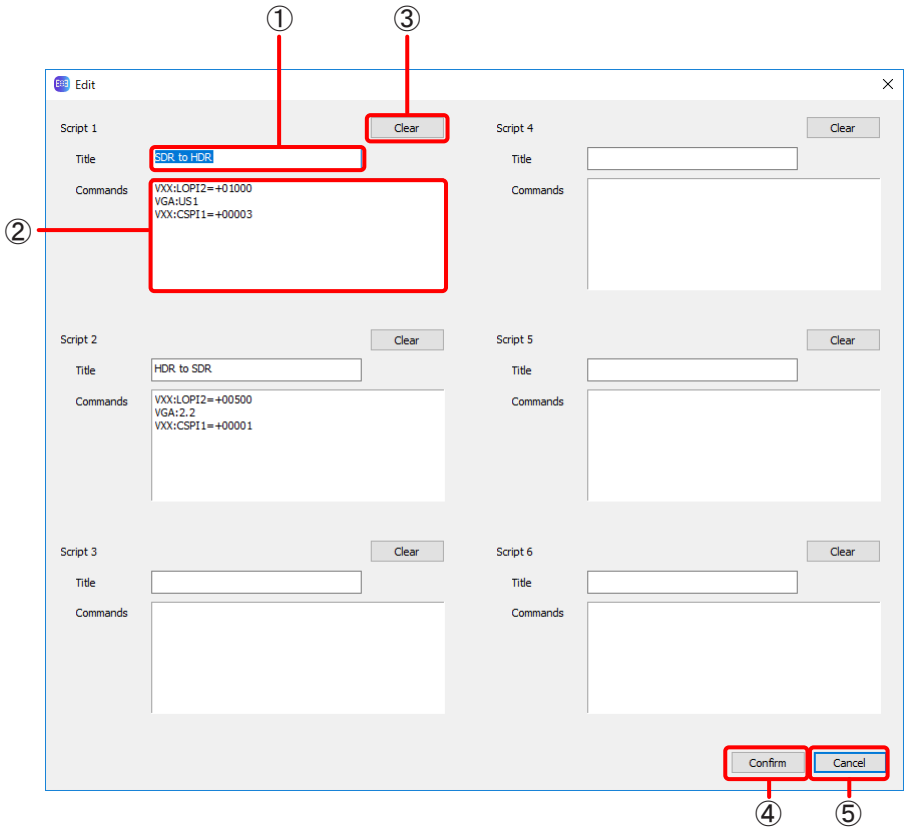
② **Command**
Enter the control commands to register.

③ **Clear**
Clear both the registered command name and registered command.

④ **Confirm**
Confirm the current editing information.

⑤ **Cancel**
Discard the current editing information. A screen appears to confirm whether or not discarding the information is a problem.

Edit screen for registered scripts



① **Title**

Enter the text to display on the registered script send buttons in the Command Control screen.
The text can consist of a maximum of 32 characters including letters, numbers, and symbols.

② **Commands**

Enter the script to register.
Up to 10 lines (10 commands) can be entered. A blank line is also counted as a line.
The next command is sent as soon as the response for the previous command is received, but if you need to specify an interval to wait until sending the command, enter it as “wait(****)” (where **** is an integer from 0001 to 9999, and the unit is milliseconds). This is also counted as a line.

Note

There is an offset of 10 to 15 seconds for an interval specified with “wait”.

③ **Clear**

Clear both the registered script name and registered script.

④ **Confirm**

Confirm the current editing information.

⑤ **Cancel**

Discard the current editing information. A screen appears to confirm whether or not discarding the information is a problem.

Auto Screen Adjustment

Applying the ET-CUK10 Auto Screen Adjustment upgrade kit to the projector or applying the ET-CUK10P Auto Screen Adjustment upgrade kit (PC) to the computer expands the functions of Geometry Manager Pro, and allows automatic adjustment of geometry correction, edge blending, color and brightness correction, adjustment of white balance, and adjustment of black level according to the shape of the screen through use of an externally connected camera.
After performing Auto Screen Adjustment, you can perform further detailed adjustment and correction manually.

Note

- The Auto Screen Adjustment upgrade kit is required to enable the Auto Screen Adjustment function.
  The Auto Screen Adjustment function will be enabled for some projectors without applying the ET-CUK10 Auto Screen Adjustment upgrade kit to the projector.

Product Number	Product Name	Description
ET-CUK10	Auto Screen Adjustment Upgrade Kit	Activating on each projector enables the “Auto Screen Adjustment plug-in software” functions.
ET-CUK10P	Auto Screen Adjustment Upgrade Kit (PC)	Activating on a computer on which the software is installed enables the “Auto Screen Adjustment plug-in software” functions.

☞ “Activation” (page 12)

- You can check whether the “Auto Screen Adjustment plug-in software” is installed and the activation status of the Auto Screen Adjustment upgrade kit (PC) in [About Geometry…] of the Version submenu.
- To use the Auto Screen Adjustment function, prepare a camera separately.
- This may be disabled depending on the model.

Preparing Auto Screen Adjustment

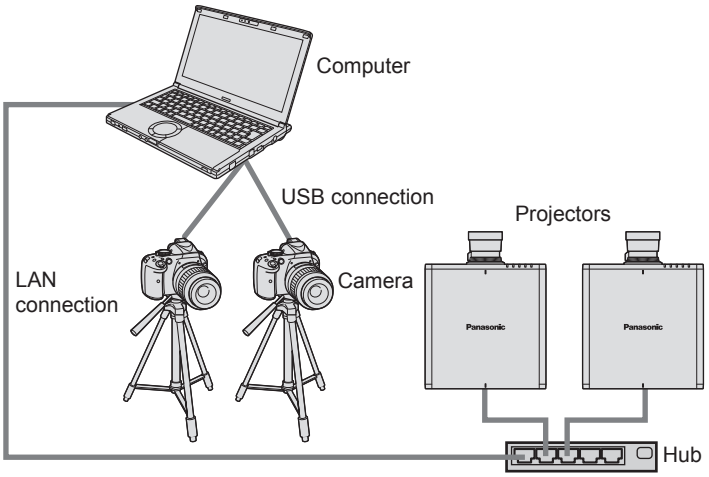
■ Projector connection

Use a LAN cable to connect the projector to the computer.

■ Camera connection

Use a USB cable to connect the camera to the computer.
For details on compatible cameras, check the information found on the software download page after logging in to PASS on the following website.
https://panasonic.net/cns/projector/pass/

■ Connection example

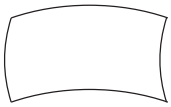
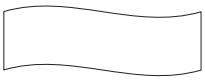
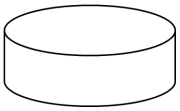
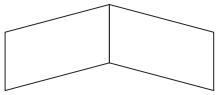


Note

- Positioning the camera so that it faces the screen directly and performing adjustments will obtain more optimal adjustment results. Adjustment is possible when the camera is facing the screen at an angle, but adjustment may fail or distortion may remain in images after adjustment if the angle is too large.
- In cases such as the following, adjustment is possible using multiple cameras (up to 6).
  - Projector layout configuration has 5 or more projectors in the vertical or horizontal direction.
  - When the entire screen does not fit in the capture range of 1 camera.

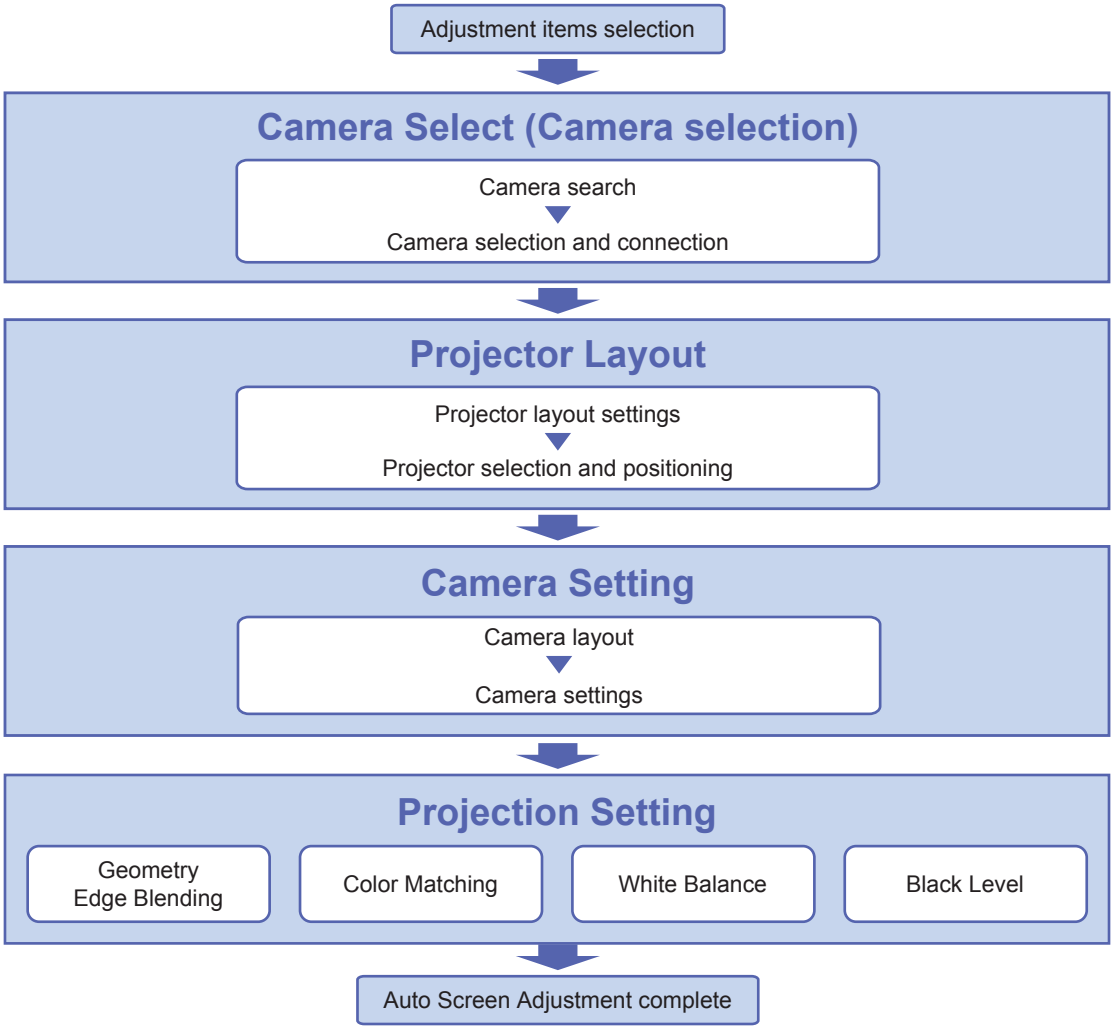
Compatible screens for Auto Screen Adjustment

Auto Screen Adjustment may not be performed properly depending on the shape of the screen. If adjustment is not performed properly, perform adjustments manually.

Compatible screens	Non-compatible screens
● **Flat** ● **Curved screen** Curved in one direction  Curved in two directions ● **Curve changes smoothly**  S-curve Variable curve type ● **360-degree curved screen** 	● **Folded**  Folded screen type * Individual adjustments for each side are possible.

Operation flow for Auto Screen Adjustment

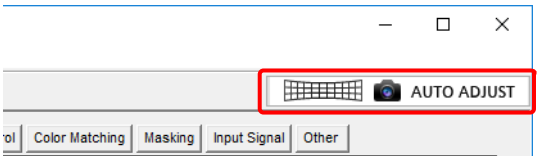
Settings for Auto Screen Adjustment are configured in a wizard format.



Auto Screen Adjustment procedure

Starting Auto Screen Adjustment and selecting the adjustment item

1 **Click the [AUTO ADJUST] button in the main screen.**



- If you click the [AUTO ADJUST] button while the combination of the versions of “Geometric & Setup Management Software” and “Auto Screen Adjustment plug-in software” is inappropriate, an error message will appear. Obtain "Auto Screen Adjustment plug-in software" displayed in the error message from the PASS website, install it, and then try again.

2 **Click the items you want to adjust.**

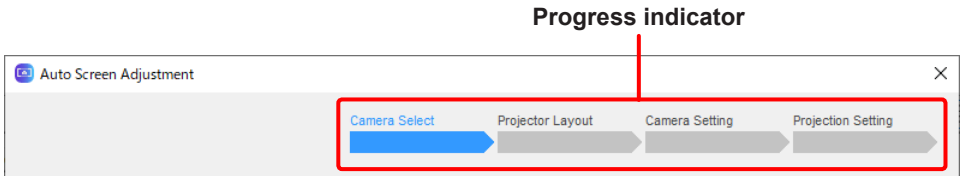
Adjustment items selection screen

- You can select from following five options
  - [Geometry, Edge Blending, Color Matching]
  - [Geometry, Edge Blending]
  - [Color Matching]
  - [White Balance]
  - [Black Level]

  By clicking the [Re-adjust] button to the right of each option, you can restore it to the setting that it had previously.
  ☞ “Readjust by recalling previous settings” (page 119)
- The subsequent steps and screens that appear in the procedure will vary depending on the selected items.

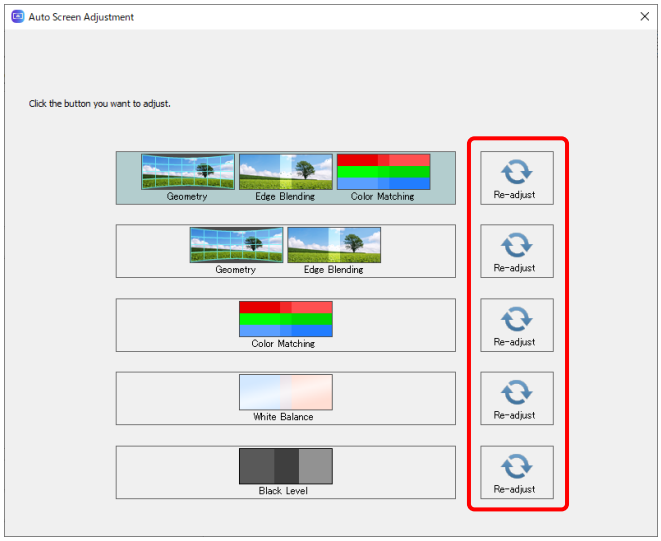
Note

- Make sure the projector is turned on before starting Auto Screen Adjustment. Proper correction will not be possible if the projector is in the standby state.
- When performing automatic screen color, brightness, white balance, and black level correction, do so in an environment where the impact from external lighting will be low.
- While setting Auto Screen Adjustment, a progress indicator will appear at the top right of each screen, allowing you to check which step you are currently performing.



■ Readjust by recalling previous settings

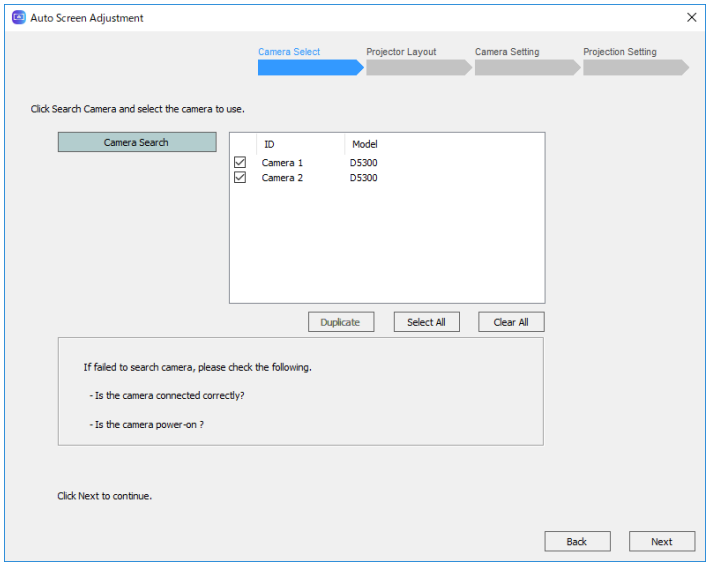
By clicking the [Re-adjust] button, you can restore options to the settings that they had previously.



Note

- If an option does not have a previous setting, the [Re-adjust] button for that option is disabled.
- If readjustment fails, Auto Screen Adjustment is canceled. In this case, you can continue making adjustments using the usual manual procedure from the point at which adjustment was interrupted.
- To cancel Auto Screen Adjustment in progress, click [Abort]. In this case, you can continue making adjustments manually from the point at which adjustment was interrupted.

Camera Select (Camera selection)



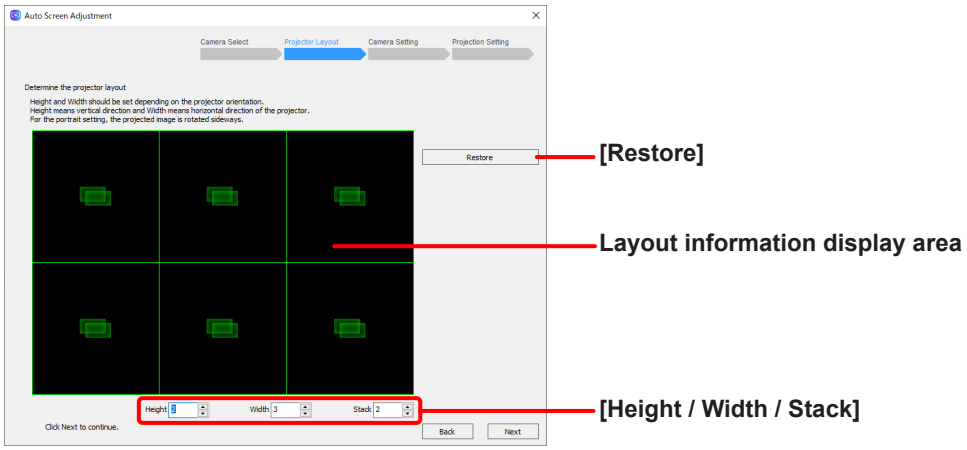
1 Verify camera connection in the camera connection screen.

1) Click [Camera Search] button.
- The Camera Search screen opens.
- When the search results are displayed, select the camera to use for adjustment from those results.
- If a camera is not displayed in the list, check the following.
  - The camera is properly connected.
  - The camera is turned on.
- Verify that the check boxes of the cameras to be used are selected.
- You can select all the cameras by clicking the [Select All] button, or clear selection of all the cameras by clicking the [Clear All] button.

2) Click [Next].
- To return to the previous screen, click [Back].

Projector Layout

1 Specify the projector configuration in the projector layout setting screen.



Projector layout setting screen

1) When you click the [Restore] button and layout information from previously configured projectors exists, the layout information is loaded and applied to the layout information display area.
2) Enter the height, width, and stack layout for the projectors in the [Height / Width / Stack] fields.
   - Up to 99 projectors can be configured.
     - In the case of 1 camera, adjustment can be performed for up to 4 vertically, up to 4 horizontally, and up to 6 stacked.
     - 5 or more projectors can be configured either vertically or horizontally by using multiple cameras.
       The relationship between the number of projectors and the number of cameras is as follows.

Number of projectors	1 to 4	3 to 7	4 to 10	5 to 13	6 to 16	7 to 19
Number of cameras	1	2	3	4	5	6

     - 360-degree curved screens require 5 or more projectors in the vertical or horizontal direction and 3 or more cameras.

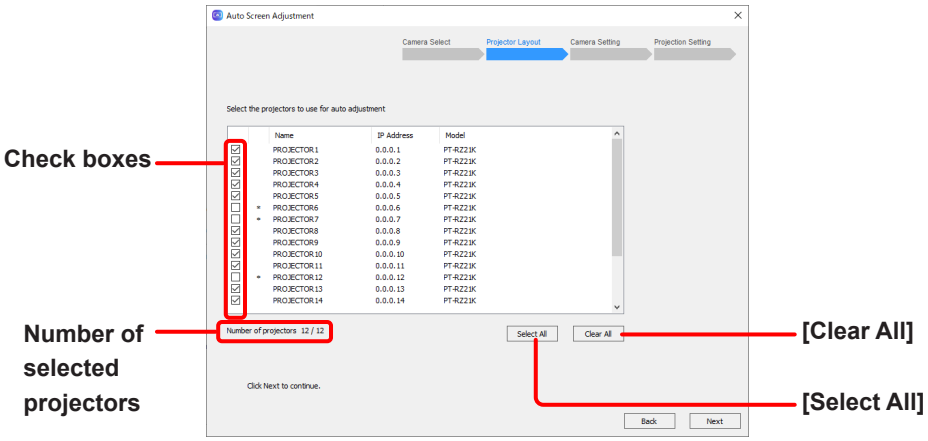
Number of projectors	5 to 9	5 to 12	5 to 15	6 to 18
Number of cameras	3	4	5	6

Note

- You cannot configure a layout that includes more projectors than the total number of connected projectors.
- If [Geometry, Edge Blending, Color Matching], [Color Matching], [White Balance], or [Black Level] was selected in the adjustment items selection screen, configure the layout so that either height (vertical) or width (horizontal) is more than one projector.

3) Click [Next].
   - To return to the previous screen, click [Back].

2 Select the projectors for which to perform correction in the projector selection screen.



Projector selection screen

1) Select the check boxes of the projectors for which you want to perform correction in the connected projectors list.
   - You can select all the projectors by clicking the [Select All] button, or clear selection of all the projectors by clicking the [Clear All] button.
   - If you clicked the [Restore] button in step 1 to load previous layout information, the check boxes for the configured projectors will be selected.

Note

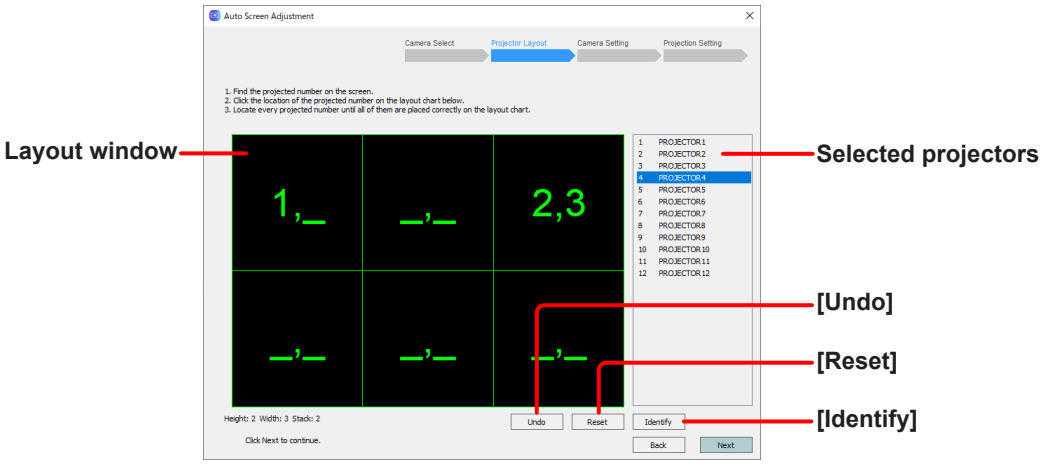
- If * is displayed on the left of a projector name, you cannot select that projector for auto screen adjustment.
  Apply the Auto Screen Adjustment upgrade kit (ET-CUK10) to the projectors or apply the Auto Screen Adjustment upgrade kit (PC) (ET-CUK10P) to the computer.
  ☞ “Activation” (page 12)

2) Click [Next].
   - To return to the previous screen, click [Back].
   - When [Color Matching] and [White Balance] are selected, a warning message will appear if projectors of different models coexist. Click [Next] to continue the process, or click [Cancel] to reselect projectors.
   - An error message will appear in the following cases.
     In such cases, click [OK] and select the projectors again.
     - Projectors with different resolutions coexist when [Geometry, Edge Blending, Color Matching], [Geometry, Edge Blending] or [Black Level] is selected.
     - The number of selected projectors does not match the number of projectors configured in the projector layout setting screen in step 1.
     - When the Auto Screen Adjustment upgrade kit (ET-CUK10/ET-CUK10P) is not applied to either the selected projectors or computer.
     - When a DLP projector and LCD projector coexist.

Note

When you click [Next], the geometry correction, edge blending, color/brightness correction, and white balance adjustment of the projectors will be initialized.

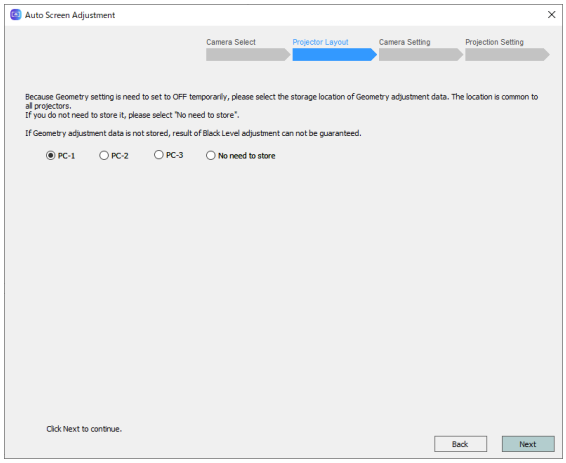
3 Confirm projector positioning in the projector positioning screen.



Projector positioning screen

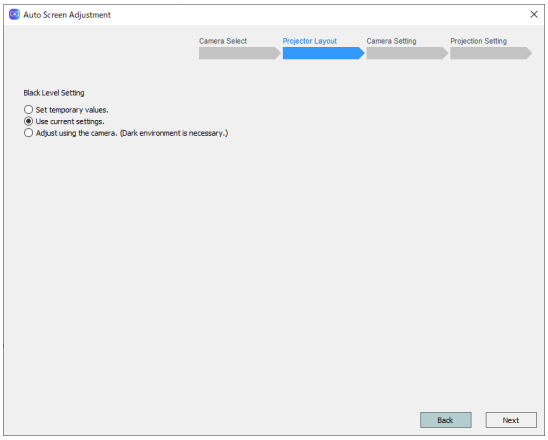
1) Click the layout window to position the projectors.
   - Configure the projectors in order, starting with the first projector in the list of selected projectors. Each number will be projected on the screen. Position the projectors in the layout window so that their numbers match the projected numbers.
   - Click the [Identify] button to verify the actual projector positions on the projection screen. Each projector will project their numbers on the screen when you click the [Identify] button.
   - You can cancel the positioning of the projector currently being configured by clicking the [Undo] button, or cancel positioning for all projectors by clicking the [Reset] button.
2) Click [Next].
   - To save the projector positioning information, click [Next].
   - To return to the previous screen, click [Back].
   - An error message will appear if positioning of all the projectors is not complete. Configure settings again.
   - If other than [Black Level] is selected, go to the camera connection screen.
     ☞ “Camera Setting” (page 125)

4 Select the storage location of the current geometry correction data in the geometry correction data storage location confirmation screen.



1) The current geometry correction data needs to be stored inside the projector so select that storage location from [PC-1] to [PC-3]. If the data is already stored, select [No need to store].
   - The storage location is common for all projectors that are target for Auto Screen Adjustment.
   - If the current geometry correction data is not stored, that data will be discarded during the process. The result of black level adjustment will not be able to be guaranteed.

2) Click [Next].
   - To return to the previous screen, click [Back].
   - When [Next] is clicked, the current geometry correction data is saved to the storage location.
   - If [Geometry, Edge Blending, Color Matching] or [Geometry, Edge Blending] is selected and the layout is configured so that either height (vertical) or width (horizontal) is more than one projector in the projector layout screen, the black level adjustment selection screen opens.



Select the process for the black level of the area to be overlapped.
- [Set temporary value]: Overwrite the black level value with the temporary value of the corresponding models.
- [Use current settings]: Retain the current (pre-adjustment) black level value.
- [Adjust using the camera]: Adjust the black level using the camera.

   - When there are 2 or more cameras, goes to "1 Camera layout screen."
   - When there is one camera, goes to "2 Camera setting screen."

Camera Setting

1 Decide the layout (arrangement) of the cameras while checking the captured images in the camera layout screen.

Perform this work when using 2 or more cameras.

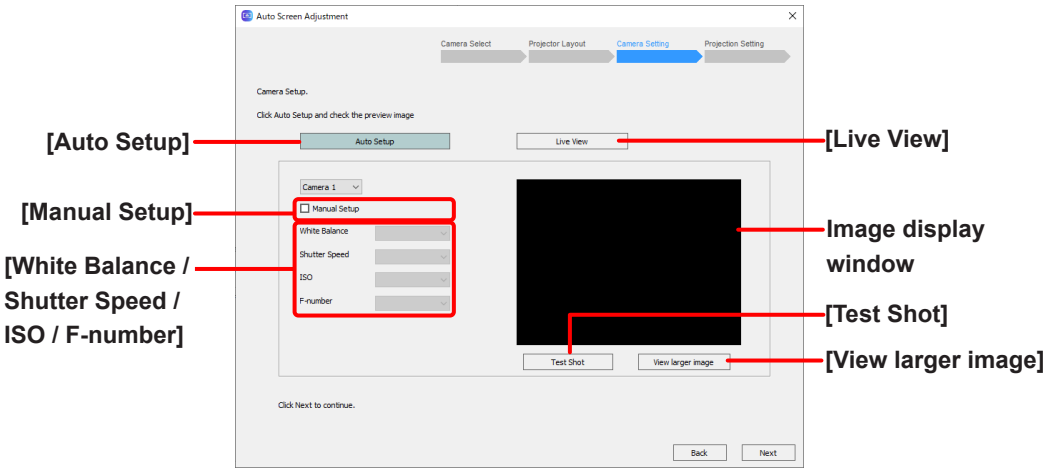
Camera setting screen

1) Set the camera layout.
   - [Horizontal / Vertical]: Camera placement direction (horizontal/vertical)
   - [360 degree screen]: Select this check box when 360-degree screen
2) Select the cameras and set the target ranges.
   - The target range of the selected camera is indicated by an orange frame in the camera layout window.
3) Capture a test shot with the camera.
   - When you click the [Test Shot] button, a test shot is captured with the selected camera and the captured image appears in the captured image display window.
   - Verify that the target range fits within the captured image.
     If it does not fit, check the actual position of the camera, the selection status of the camera, and the target range setting.
   - When you click the [View larger image] button, the content of the captured image display window is displayed enlarged in another window. If you resize that window, the image is also resized while maintaining the aspect ratio.
4) Click [Next].

Note

- The layout settings of the camera may not be able to be changed depending on the conditions.
- One projector's worth of overlap is required for images captured with cameras that are side by side.
- The layout settings of the camera can also be configured while checking the live view images. Click [Live View] and configure the settings in live view.
  ☞ “Live View” (page 144)

2 Configure the camera you will use in the camera setting screen.



Camera setting screen

1) Click the [Auto Setup] button.
   - A test pattern appears on the screen, and camera configuration starts automatically.
   - When using 2 or more cameras, configure the settings of all the cameras.
   - The setting values configured in step 1) appear in the [White Balance / Shutter Speed / ISO / F-number] fields. You can select the [Manual Setup] check box to configure the setting values manually.
   - If [Black Level] is selected, next also set the camera for black level adjustment.
2) Capture a test shot.
   - A test shot is captured when you click the [Test Shot] button, and the captured image appears in the image display window. Verify that the entire screen fits within the image display window.
   - When you click the [View larger image] button, the content of the captured image display window is displayed enlarged in another window. If you resize that window, the captured image is also resized while maintaining the aspect ratio.

Note

- To obtain the optimal adjustment results, make adjustments so that the target area of the screen fills as much of the captured image display window as possible.
- Adjustment may fail if the target area of the screen does not fit properly within the captured image display window.
- An error message appears if camera configuration fails. In such cases, check the content of the message, click [OK], and configure settings again.
- If the screen is too bright or there is a strong light present, overexposure may occur and adjustment may fail.

3) Click [Next].
   - To return to the previous screen, click [Back].

Projection Setting

Adjust the option selected in “Starting Auto Screen Adjustment and selecting the adjustment item” (page 118).
Perform the operations by referring to their explanations on the following pages.

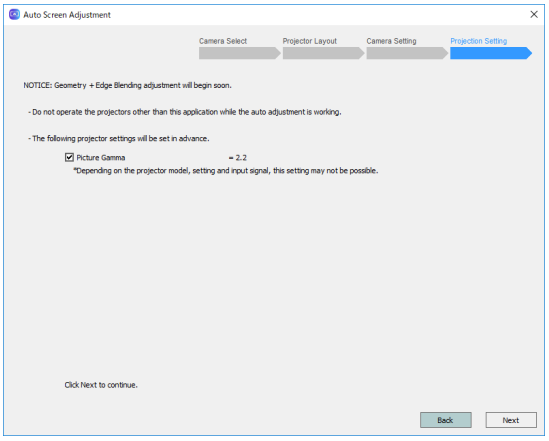
- When [Geometry, Edge Blending, Color Matching] or [Geometry, Edge Blending] is selected
  ☞ “Geometry and Edge Blending Adjustments” (page 127)
- When “Color Matching” is selected
  ☞ “Color Matching Adjustments” (page 134)
- When “White Balance” is selected
  ☞ “White Balance Adjustments” (page 138)
- When “Black Leve” is selected
  ☞ “Black Level Adjustments” (page 141)

■ Geometry and Edge Blending Adjustments

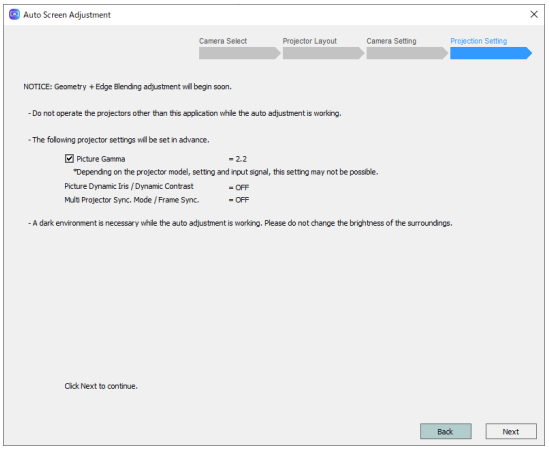
1 When the following confirmation screen appears, check the content displayed and click [Next].

When you click [Next], the projector settings will change to those displayed on this screen. For the setting with a check box, adjustment can be made without changing that setting by clearing the check box.

- To return to the previous screen, click [Back].

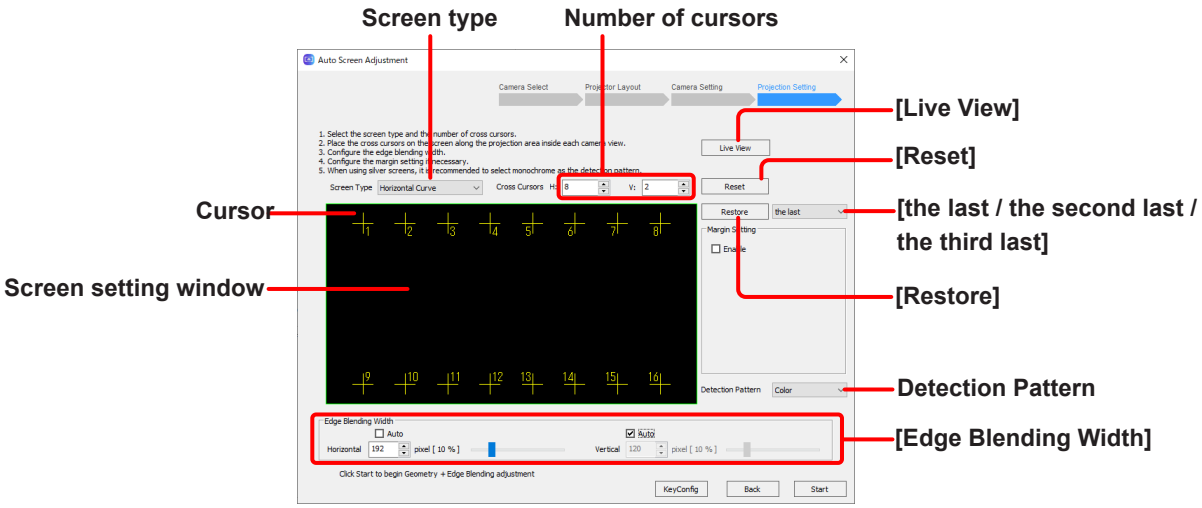


Setting initialization confirmation screen
(geometry correction and edge blending: when black level correction not performed)



Setting initialization confirmation screen
(geometry correction and edge blending: when black level correction performed)

2 Configure the screen type and overlap areas in the screen setting screen.



Screen setting screen

1) Specify the screen type and number of cursors.
   - Select the screen type that matches the shape of the screen. Set the number of cursors according to the shape or curvature of the screen.
     [Flat]: Flat screen
     [Horizontal Curve]: Screen that is curved in the horizontal direction
     [Vertical Curve]: Screen that is curved in the vertical direction
     [H-V Curve]: Screen that is curved in the horizontal or vertical direction
   - The number of cursors that can be selected is a total of 300, with 2 to 100 per side when [Flat] is selected and 3 to 100 per side when other than that is selected.

Note

When the software transitions to this screen, a number of cursors calculated from the number of projectors and layout information is set automatically. This value is merely supposed to serve as a guide. Change it to match the shape or curvature of the actual screen.

2) While viewing the actual screen, position the cursors in the screen setting window according to the shape of the screen.
   - Position each cursor by dragging them or by using the arrow keys on the keyboard. When using the keyboard, pressing an arrow key while a cursor is selected moves the cursor 8 dots, pressing an arrow key while holding the Ctrl key moves the cursor 1 dot, and pressing an arrow key while holding the Alt key moves the cursor 64 dots.
   - You can select the next cursor by pressing the Tab key, or the previous cursor by pressing the Tab key while holding the Shift key.
   - You can also select cursors using the number keys on the keyboard.
   - If cursor layouts were previously configured, you can restore up to the three most recent cursor layout configurations using the [Restore] button. Select [the last], [the second last], or [the third last] from the pull-down menu to select the configuration you want to restore, and click the [Restore] button.
   - To return all cursors to their original positions, click [Reset].
   - The maximum number of cursors that are actually projected on the screen at one time is 100. Up to two digits can be be displayed for numbers on the screen, and the 100th, 200th, and 300th cursors will be displayed as "0." For example, when you want to select the 101st cursor, press the Tab key while the 100th cursor is selected, or enter "101" using the keyboards number keys.
     The cursors that are projected are switched in groups of 100 in different colors. Cursors 1 to 100 are displayed in yellow, 101 to 200 in orange, and 201 to 300 in magenta.
   - The cursor can be selected and moved while checking the live view images. Click [Live View] and configure the settings in live view.
     ☞ “Live View” (page 144)
   - The cursor can be selected and moved using a gamepad. A function can be assigned to each button of the gamepad by clicking the [KeyConfig] button.
     ☞ “Operation by Gamepad” (page 149)

3) To configure the horizontal and vertical overlap areas, enter the values in the [Edge Blending Width] fields.
   - The [Edge Blending Width] values are set the same for all projectors.
   - You can also use the sliders to specify values.
   - A percentage value that corresponds to the configured pixel count appears in the percent display.
   - To configure the overlap areas automatically, place check marks next to Auto of [Horizontal] and [Vertical]. The values resulting from automatic configuration appear in a message after adjustment is complete.
4) Set the detection pattern.
   - Select the detection pattern that matches the screen characteristics or camera layout.

     [Color]: Pattern recommended for a diffusion type white matte screen.

     [Monochrome]: Pattern recommended when using a screen with a narrow viewing angle such as a silver screen or when the camera cannot be placed in front of the screen.

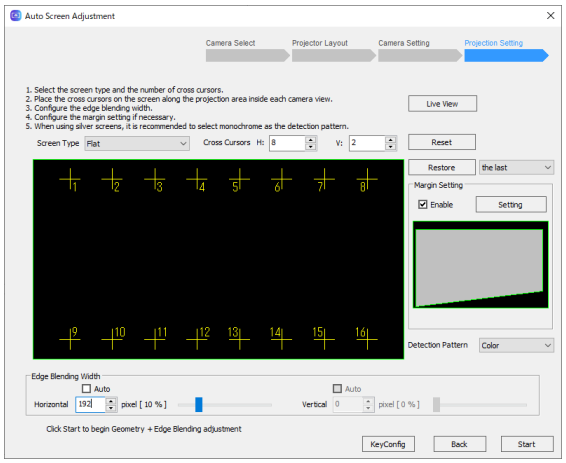
Note

Some models do not support [Monochrome].

[Monochrome] can be selected only when it is supported by all of the selected projectors.

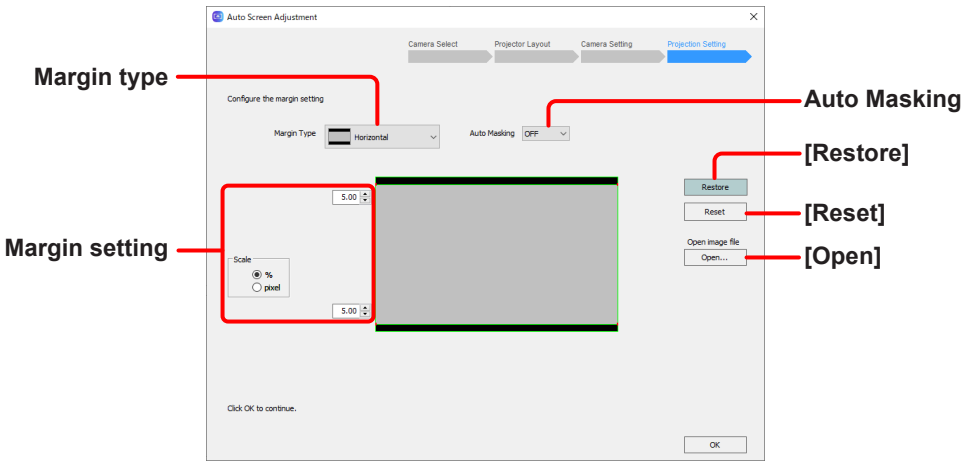
3 If the content being projected has margins and you want to set the margin area, select the check box next to [Enable] by [Margin Setting] in the check screen setting screen.

- Setting a screen margin makes it easier to set the position of cursors when making screen settings.
- Setting of straight margins is possible. Setting of curved margins is not possible.



Screen setting screen

- The margin setting screen opens.
  Select the type for margin with [Margin Type] and then set the margin size as a numeric value.



Margin setting screen

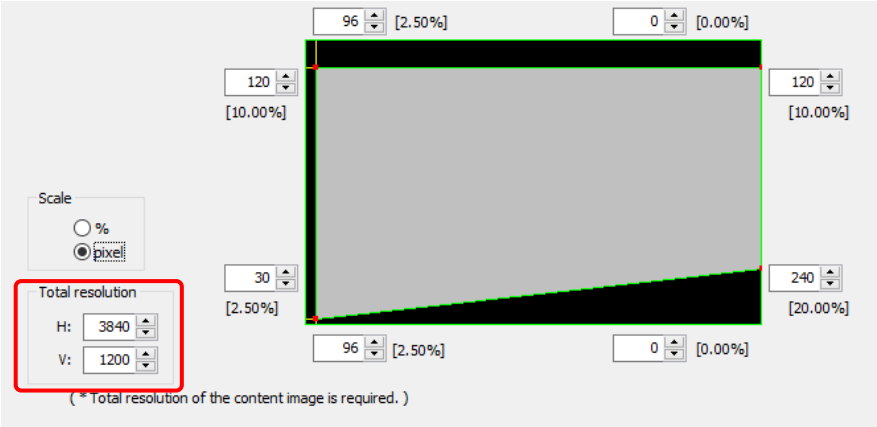
- Select the margin type.
  [Horizontal]: Horizontal margins at the top and bottom of the image
  [Vertical]: Vertical margins at the left and right sides of the image
  [Custom]: Margins other than the above
- To use Auto Masking together with margins, configure [Auto Masking].
  [OFF]: Auto Masking is not performed.
  [PC-1 / PC-2 / PC-3]: Auto Masking is enabled.

Note

[Auto Masking] will only be applied if the upgrade kit (ET-UK20) has been applied to the selected projector. Some models do not support this function.

☞ “Activation” (page 12)

- Specify margins on each side individually. Select either [%] or [pixel] for [Scale] and enter the overall size of the projected content (including margins) in terms of the percentage or number of pixels. Note that the total margin that can be set on any given side cannot exceed 60%.
  If [pixel] is selected for [Scale], change the numerical value for [Total resolution] according to the overall content size.



- Click the [Restore] button to restore the margins to the last previously set configuration.
- Click the [Reset] button to return the configured margin size to the initial value (about 5%).

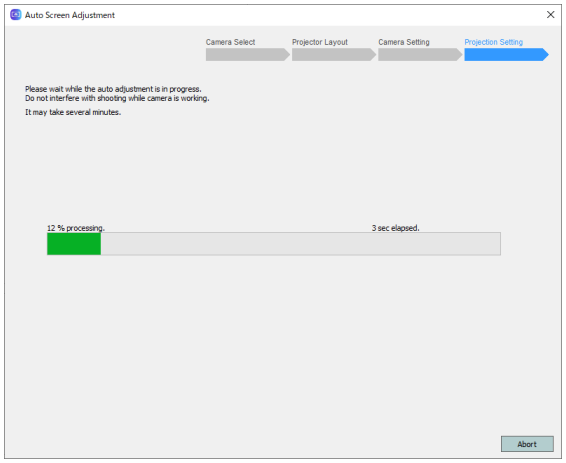
- Click the [Open] button to reads reference image files (files with the extension .bmp or .jpeg).

- When done setting the margins, click [OK].
  Display returns to the screen setting screen.

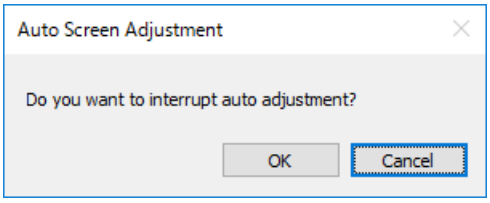
4 Click [Start].

To save the projector positioning information, click [Start].

- A progress bar appears, and Auto Screen Adjustment for geometry correction and edge blending starts.
- To return to the previous screen, click [Back].



- To cancel Auto Screen Adjustment, click [Abort].
  In such cases, click [OK] when the following screen appears.

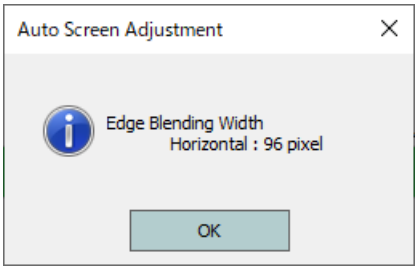


Note

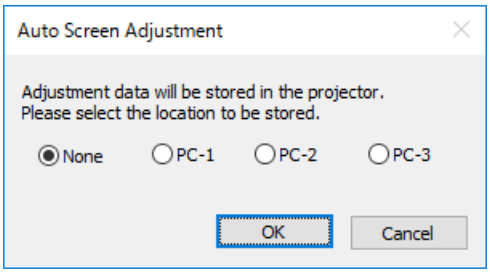
When you are making adjustments for 2 or more cameras, an error will be displayed if you click [Start] in the state in which the number of cursors in the direction that the cameras are arranged is the number of cameras or less. Set a number of cursors that is at least one more than the number of cameras.

5 When Auto Screen Adjustment is successfully completed, the following message appears.

If you selected the Auto check box in [Edge Blending Width], the values resulting from automatic configuration are displayed.



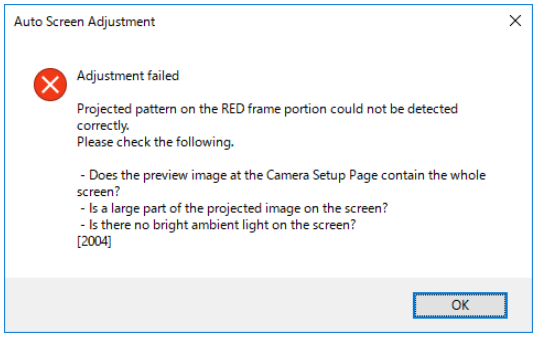
To save the adjustments in the projector, select [PC-1], [PC-2], or [PC-3] as the storage location, or select [None] if you do not want to save the settings, and then click [OK]. If you click [Cancel] the adjustments are not saved in the projector.



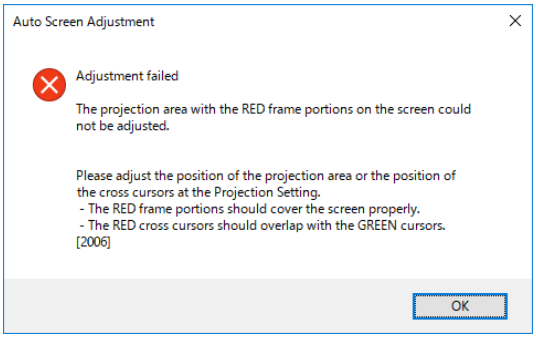
If [Geometry, Edge Blending] was selected in “Starting Auto Screen Adjustment and selecting the adjustment item” (page 118) and [Set temporary value] or [Use current settings] was selected in the black level adjustment screen (page 124), Auto Screen Adjustment is complete.
If [Geometry, Edge Blending, Color Matching] was selected in “Starting Auto Screen Adjustment and selecting the adjustment item” (page 118), go to the procedure of “■ Color Matching Adjustments” (page 134)".

In the case of other than the above, go to the procedure of “■ Black Level Adjustments” (page 141)".

- A message appears if Auto Screen Adjustment fails. In such cases, check the content of the message, click [OK], and configure settings again.
  To return to the screen from step 2 (☞ page 128), click [OK].



- Capture a test shot, and verify that the entire screen fits within the image display window. (☞ page 126)
- Verify that a large portion of the projected image to be adjusted fits within the screen.
- Check that the camera and screen are as close as possible to directly facing each other.

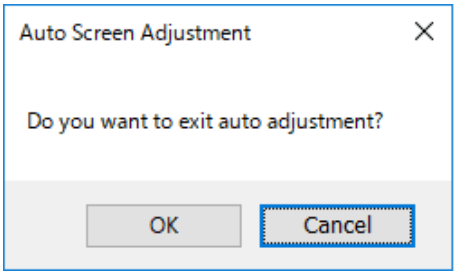


- Check the position of the image that is projected on the screen.

- Even if there is a setting that exceeds the geometric distortion correction limit of the projector, the adjustment results will be sent to the projector. Bear in mind, however, that in such cases the projected images may lose their shape.

Note

- When you click the ☒ button at the top right of the screen, a confirmation screen for canceling Auto Screen Adjustment appears.
  To exit Auto Screen Adjustment, click [OK]. To return to the previous screen, click [Cancel].



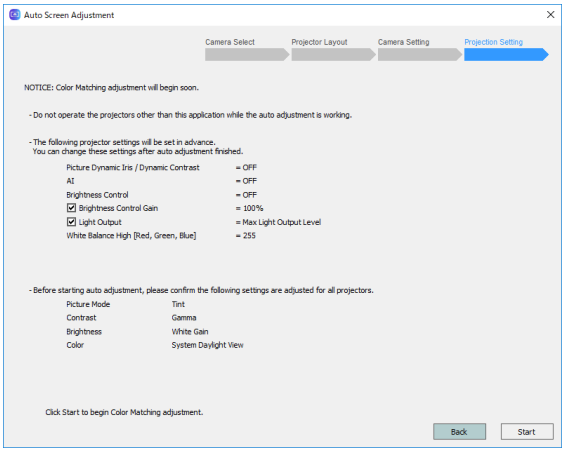
- The projector layout and cursor layout information configured during Auto Screen Adjustment is stored until the next time you configure the settings.
- To perform detailed adjustment after using Auto Screen Adjustment, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings - Geometry Correction” (page 57)
  ☞ “Adjustment and Settings - Edge Blending” (page 71)

■ Color Matching Adjustments

1 When the following confirmation screen appears, check the content displayed and click [Next].

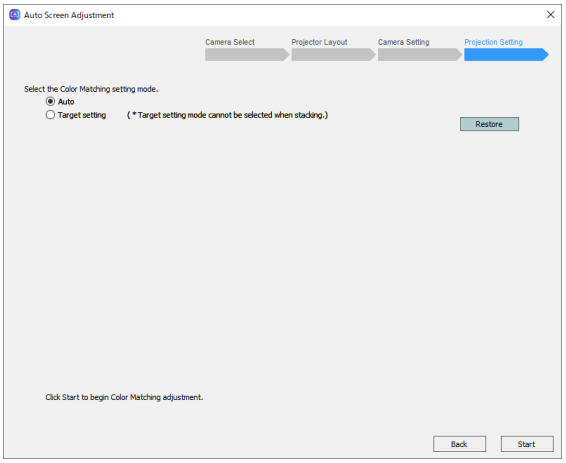
When you click [Next], the projector settings will change to those displayed on this screen. For the setting with a check box, adjustment can be made without changing that setting by clearing the check box.

- To return to the previous screen, click [Back].

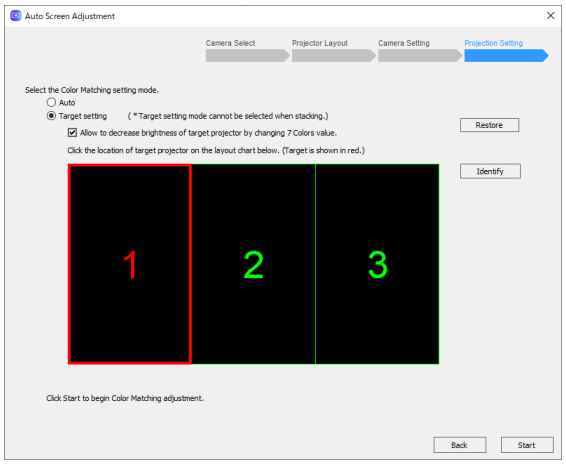


Setting initialization confirmation screen (color and brightness adjustment)

1) When adjusting color, use the [Auto] option to optimize adjustment for the screen overall, or the [Target Setting] option when configuring a target (standard) projector.

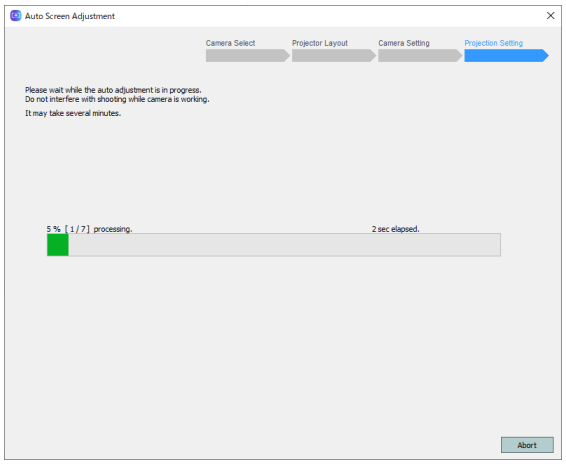


2) If you select the [Target Setting] option, also select the projector that is to be the target.
   - When you click the target projector number, the number and its frame change to red.
   - Click the [Restore] button to restore the last previously set configuration.
   - Click the [Identify] button to verify the actual projector positions on the projection screen. Each projector will project their numbers on the screen when you click the [Identify] button.

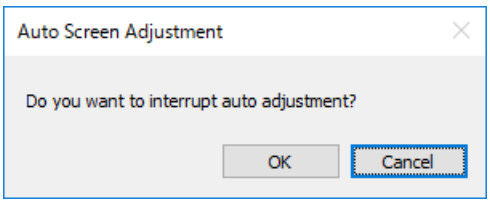


2 Click [Start].

The projector positioning information is saved.
A progress bar appears, and Auto Screen Adjustment for color and brightness adjustment starts.



- To cancel Auto Screen Adjustment, click [Abort].
  In such cases, click [OK] when the following screen appears.



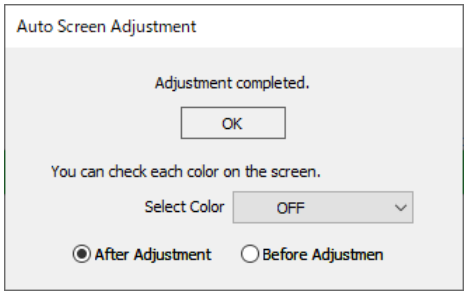
3 A message indicating that Auto Screen Adjustment is complete appears.

Click [OK].

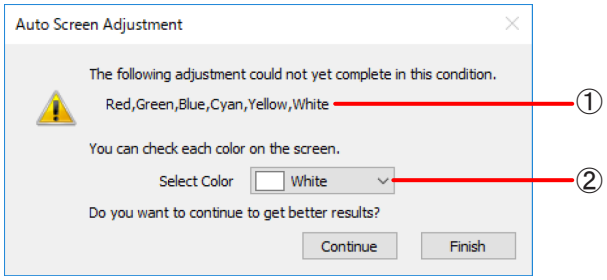
If [Geometry, Edge Blending, Color Matching] was selected in "Starting Auto Screen Adjustment and selecting the adjustment item" (page 118) and [Adjust using the camera] was selected in the black level adjustment screen (page 124), go to the procedure of “■ Black Level Adjustments” (page 141)".

In the case of other than the above, auto screen adjustment is finished.

- To restore the conditions from before adjustment, select [Before Adjustment]. If you select [After Adjustment] after selecting [Before Adjustment], the displays are returned to the conditions from after Auto Screen Adjustment completion.



- The following message appears if Auto Screen Adjustment could not be completed and must be performed again. To perform Auto Screen Adjustment for color and brightness correction again, click [Continue]. To exit Auto Screen Adjustment, click [Finish].



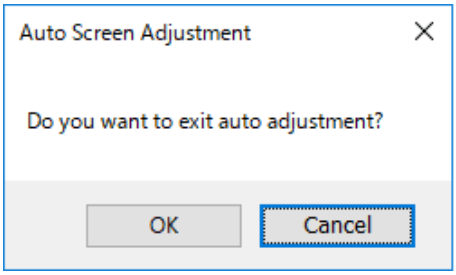
① Colors for which Auto Screen Adjustment was not completed are displayed here.

② Here you can confirm the adjustment results for the selected color on screen.

- A message appears if Auto Screen Adjustment fails due to overexposure.
  If the screen is too bright or there is a strong light present, overexposure may occur. In such cases, click [OK] and configure settings again.
- If Auto Screen Adjustment for color and brightness adjustment is performed again and fails to complete, a message will appear. Click [OK] to exit Auto Screen Adjustment.
  In such cases, perform adjustment manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings – Color Matching / Color Adjustment” (page 89)

Note

- When you click the ☒ button at the top right of the screen, a confirmation screen for canceling Auto Screen Adjustment appears.
  To exit Auto Screen Adjustment, click [OK]. To return to the previous screen, click [Cancel].



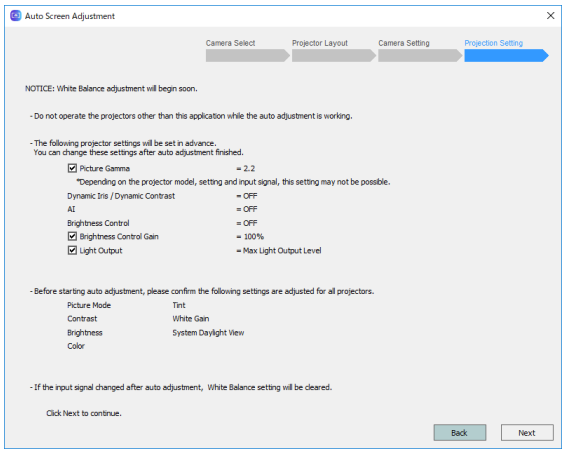
- The projector layout and cursor layout information configured during Auto Screen Adjustment is stored until the next time you configure the settings.
- To perform detailed adjustment after using Auto Screen Adjustment, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings – Brightness Control” (page 86)
  ☞ “Adjustment and Settings – Color Matching / Color Adjustment” (page 89)

■ White Balance Adjustments

1 When the following confirmation screen appears, check the content displayed and click [Next].

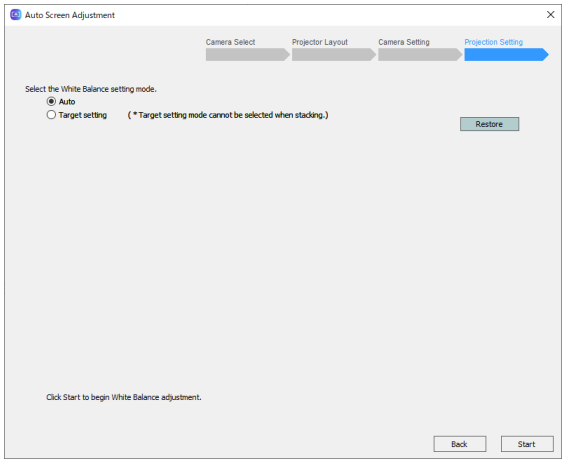
When you click [Next], the projector settings will change to those displayed on this screen. For the setting with a check box, adjustment can be made without changing that setting by clearing the check box.

- To return to the previous screen, click [Back].

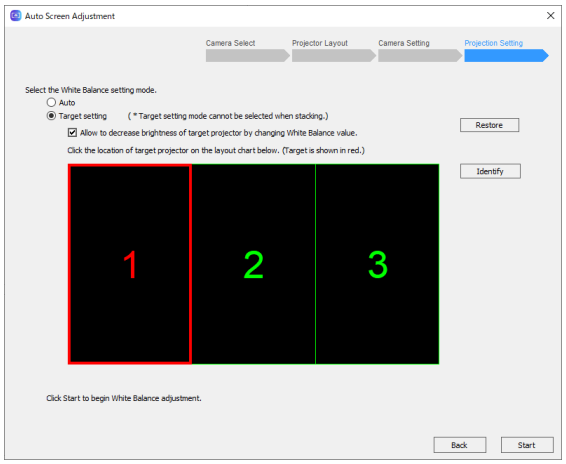


Setting initialization confirmation screen (White Balance Adjustments)

1) When adjusting color, use the [Auto] option to optimize adjustment for the screen overall, or the [Target Setting] option when configuring a target (standard) projector.



2) If you select the [Target Setting] option, also select the projector that is to be the target.
   - When you click the target projector number, the number and its frame change to red.
   - Click the [Restore] button to restore the last previously set configuration.
   - Click the [Identify] button to verify the actual projector positions on the projection screen. Each projector will project their numbers on the screen when you click the [Identify] button.

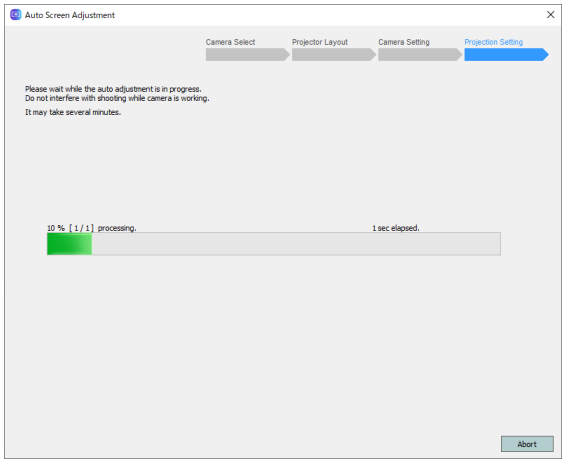


Note

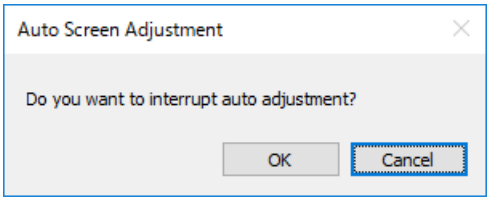
- White balance is adjusted by configuring the [Picture]-[Color Temperature]-[USER1]-[White Balance High] values.
- In order to manually pre-configure white balance for the target projector, change the [White Balance High] settings as described earlier.
- The results of white balance adjustment are saved to the projector for each input signal. When the input signal is changed, do the adjustment again.
- With some projectors that use single-chip DLP, the color matching setting is forcibly set to OFF when white balance is adjusted. Refer to the operating instructions of the projector.

2 Click [Start].

The projector positioning information is saved.
A progress bar appears, and Auto Screen Adjustment for white balance starts.



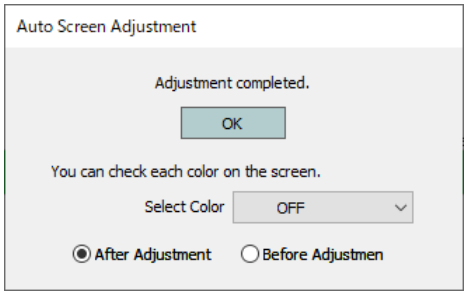
- To cancel Auto Screen Adjustment, click [Abort].
  Click [OK] when the following screen appears.



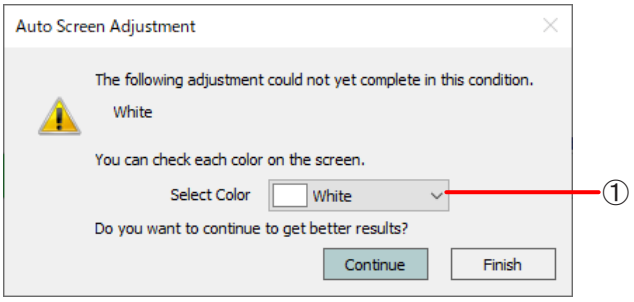
3 A message indicating that Auto Screen Adjustment is complete appears.

To exit Auto Screen Adjustment, click [OK].

- To restore the conditions from before adjustment, select [Before Adjustment]. If you select [After Adjustment] after selecting [Before Adjustment], the displays are returned to the conditions from after Auto Screen Adjustment completion.



- The following message appears if Auto Screen Adjustment could not be completed and must be performed again. To perform Auto Screen Adjustment for white balance again, click [Continue]. To exit Auto Screen Adjustment, click [Finish].

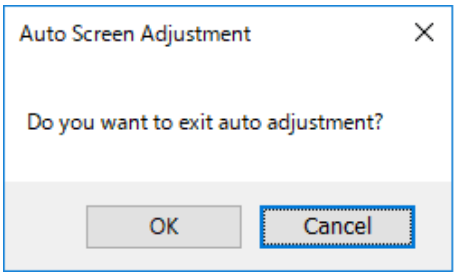


① Here you can confirm the adjustment results for the selected color on screen.

- A message appears if Auto Screen Adjustment fails due to overexposure.
  If the screen is too bright or there is a strong light present, overexposure may occur. In such cases, click [OK] and configure settings again.
- If Auto Screen Adjustment of white balance is not completed a second time, a message is displayed. Click [OK] to complete Auto Screen Adjustment.
  In this case, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings - Picture” (page 103)

Note

- When you click the ☒ button at the top right of the screen, a confirmation screen for canceling Auto Screen Adjustment appears.
  To exit Auto Screen Adjustment, click [OK]. To return to the previous screen, click [Cancel].



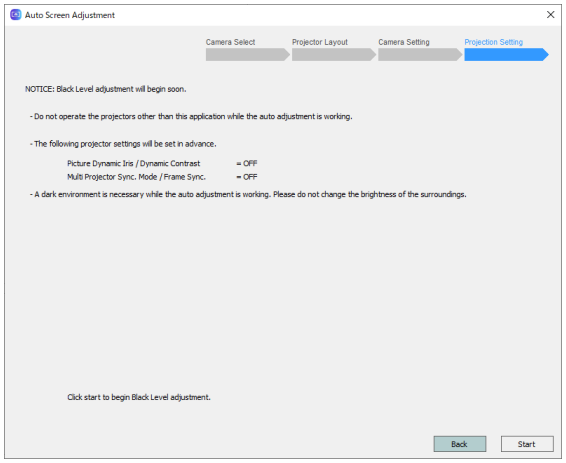
- To perform detailed adjustment after using Auto Screen Adjustment, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings - Input Signal Adjustments” (page 97)

■ Black Level Adjustments

1 When the following confirmation screen appears, check the content displayed and click [Start].

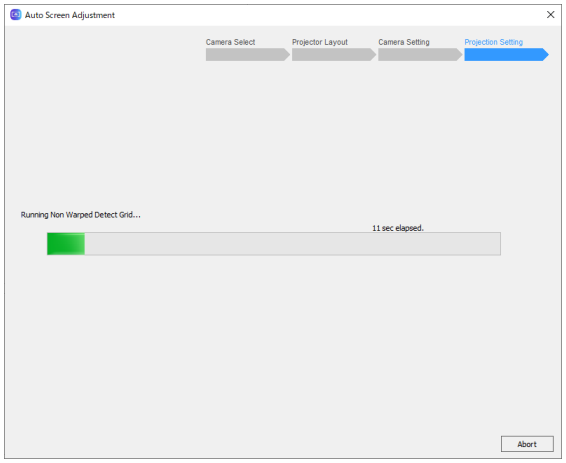
When you click [Start], the projector settings will change to those displayed on this screen.

- To return to the previous screen, click [Back].

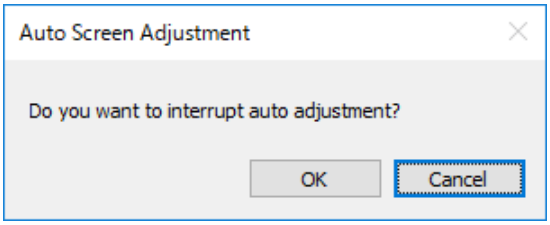


Setting initialization confirmation screen (black level adjustment)

- A progress bar appears, and Auto Screen Adjustment for black level adjustment starts.



- To cancel Auto Screen Adjustment, click [Abort].
  Click [OK] when the following screen appears.

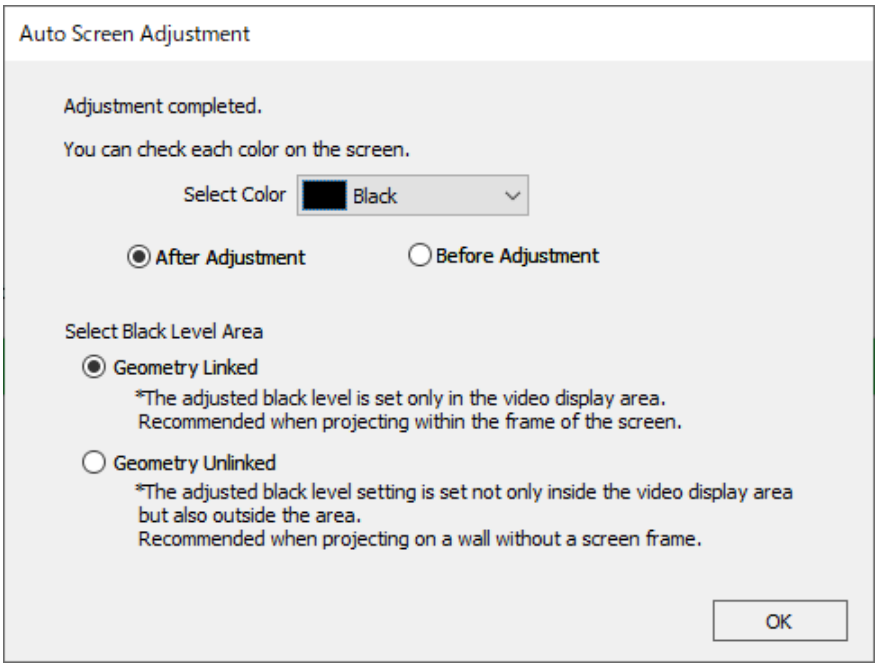


2 A message indicating that Auto Screen Adjustment is complete appears.

Click [OK].

If [Geometry, Edge Blending] or [Black Level] was selected in “Starting Auto Screen Adjustment and selecting the adjustment item” (page 118), Auto Screen Adjustment is complete.

- To restore the conditions from before adjustment, select [Before Adjustment]. If you select [After Adjustment] after selecting [Before Adjustment], the displays are returned to the conditions from after Auto Screen Adjustment completion.



- For a model that allows you to specify the area of black level adjustment, the correction area of black level adjustment is switched to allow you to check the adjustment result when you select [After Adjustment].

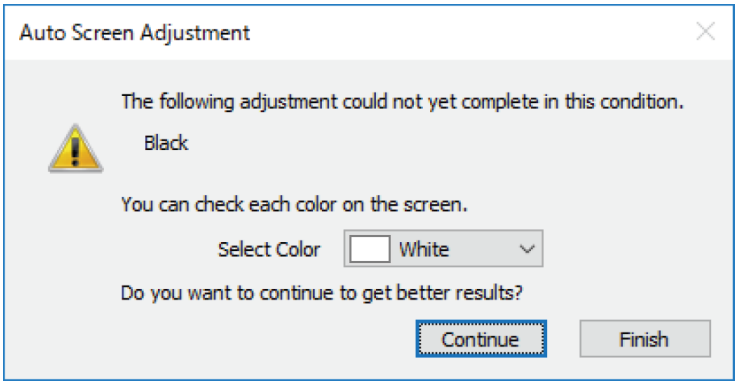
  [Geometry Linked]: Switches to the state with black level adjustment performed only inside the video display area after geometry correction.

  [Geometry Unlinked]: Switches to the state with black level adjustment performed in area also including outside the video display area.
  The elevated blacks of overlapping parts outside the video display area can be made less visible.

  If the projector layout has two or more projectors placed vertically or horizontally, a message indicating that the adjustment result may be inappropriate appears if you select [Geometry Unlinked]. If you click [OK], the [Geometry Unlinked] setting is reflected.

  If a model that does not allow you to specify the area of black level adjustment is included, it does not support this function.

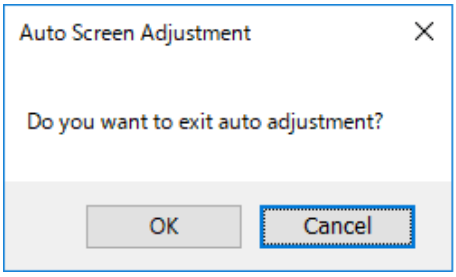
- The following message appears if Auto Screen Adjustment could not be completed and must be performed again.
  To perform Auto Screen Adjustment for black level correction again, click [Continue]. To exit Auto Screen Adjustment for black level correction, click [Finish].



- A message appears if Auto Screen Adjustment fails due to the impact of external lighting, etc.
  An error occurs if the surroundings are too bright or the brightness is changed. In such cases, click [OK] and configure settings again.
- If Auto Screen Adjustment for black level correction is performed again and fails to complete, a message will appear.
  Click [OK] to exit Auto Screen Adjustment for black level correction.
  In this case, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings - Edge Blending” (page 71)

Note

- When you click the × button at the top right of the screen, a confirmation screen for canceling Auto Screen Adjustment appears.
  To exit Auto Screen Adjustment, click [OK]. To return to the previous screen, click [Cancel].



- The projector layout information configured during Auto Screen Adjustment is stored until the next time you configure the settings.
- To perform detailed adjustment after using Auto Screen Adjustment, perform adjustments manually in the main screen of “Geometry Manager Pro”.
  ☞ “Adjustment and Settings - Edge Blending” (page 71)

Live View

Settings can be configured when, for example, it is difficult to go to the site or checking is difficult because the distance from the screen is far, by making installation adjustments while looking at live view images shot with a camera.

Note

- Installation of the Auto Screen Adjustment plug-in software must be complete to use the live view function.
  ☞ “Installing the “Auto Screen Adjustment plug-in software”” (page 8)
- The cameras that can be used with live view are the cameras compatible with Auto Screen Adjustment and some cameras that can connect to the LAN. For details on compatible cameras, check the information found on the software download page after logging in to PASS on the following website.
  https://panasonic.net/cns/projector/pass/

Live View Preparation

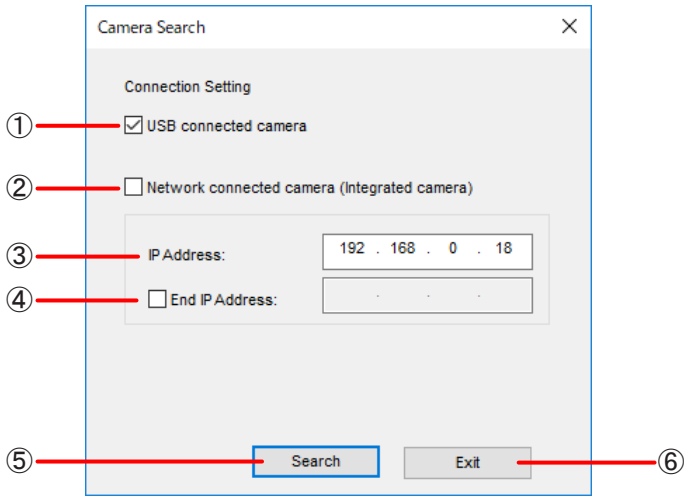
■ Camera connection

Use a USB cable or LAN cable to connect the camera to the computer.

Live View Procedure

Camera Search screen

Search for the camera to use in the live view.



① **USB connected camera**

Select this when searching for a camera connected by USB.

② **Network connected camera**

Select this when connecting with a camera connected by LAN. The IP address needs to be specified.

③ **IP Address**

Enter the IP address of the camera to connect. To search for the camera to connect, enter an IP address for which to start the search.

④ **End IP Address**

To search for the camera to connect, select the check box and enter the IP address for which to end the search.

⑤ **Search / Connect**

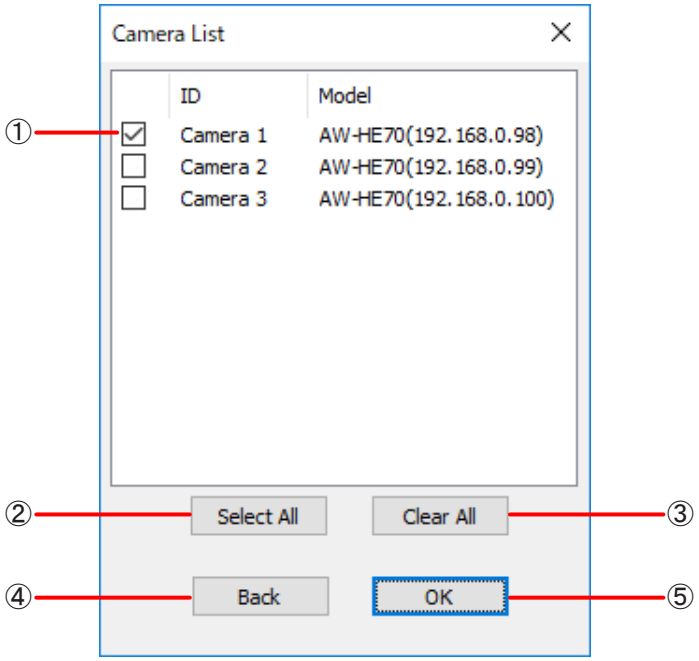
When a search for the camera to connect is performed, the search starts according to the entered information.
When a search for the camera to connect is not performed, an attempt is made to connect with the camera according to the entered information and the Live View screen appears if the connection is successful.
If the connection is successful, the Camera Search screen closes.

⑥ **Exit**

Cancel the connection with the camera and close the Camera Search screen.

Camera List screen

When the camera search is completed, the Camera List screen appears.



① **List of cameras to connect**

Displays a list of cameras that were detected by the search.

② **Select All**

Select all the detected cameras.

③ **Clear All**

Clear the selection of all detected cameras.

④ **Back**

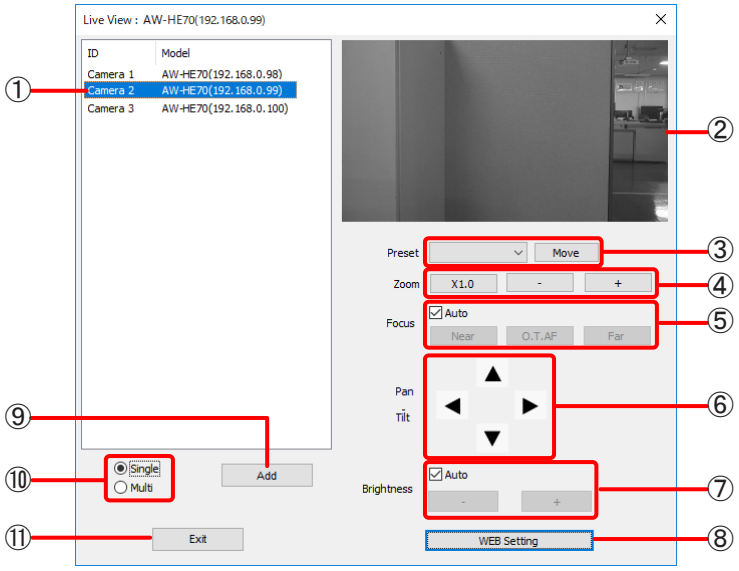
Return to the Camera Search screen.

⑤ **OK**

Connect with the selected cameras and display the Live View screen.

Live View screen

If the connections with the cameras are established correctly, the Live View screen appears.
If you resize the window, the Live View screen is also resized while maintaining the aspect ratio. However, it cannot be made smaller than the original window.



When cameras with LAN connections

① **Camera list**

Displays a list of the cameras connected with this application.

② **Live View screen**

This shows live view images of the selected camera.

③ **Preset**

Move the camera to the pan, tilt, focus, and zoom settings of the selected preset position.

④ **Zoom**

Set the camera zoom.

⑤ **Focus**

Set the camera focus.

⑥ **Pan Tilt**

Set the camera pan/tilt.

⑦ **Brightness**

Set the camera brightness.

⑧ **WEB Setting**

Open the Web browser to configure the camera settings.

Note

The preset settings of the camera need to be configured from the Web browser screen.

⑨ **Add**

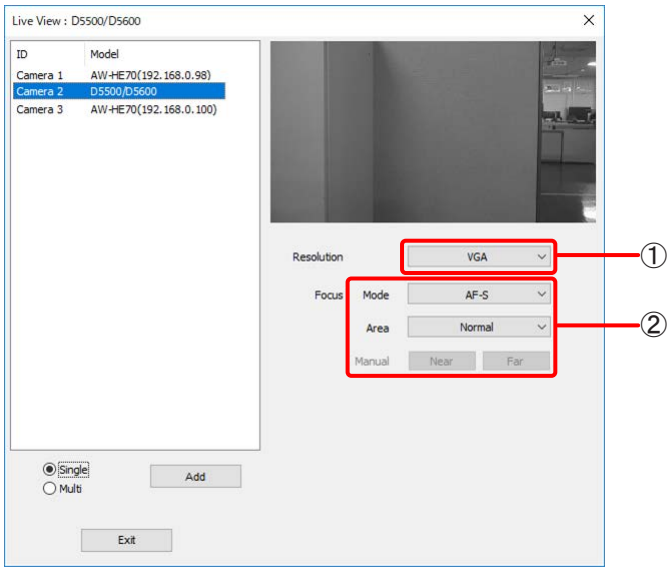
Add a camera.

⑩ **Single/Multi Selection**

Switch live view display to a single camera only or multiple cameras.

⑪ **Exit**

Close this screen and exit live view.



When cameras with USB connections

① Resolution

Set the resolution of live view images. The setting is fixed to [VGA].

Note

Even if you change the resolution, the display size of the Live View screen does not change.
Display is enlarged or reduced to fit this range.

② Focus

Set the camera focus.

Mode:
Set the focus operation mode.

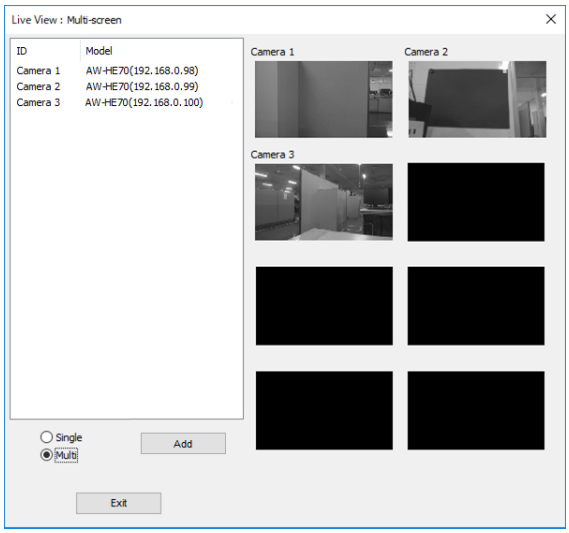
Area:
Set the AF area.

Manual:
Adjust the focus when [Mode] is [AF-S].

Note

- When focus adjustment is performed, the operation may not be noticeable due to the corresponding amount of change being extremely small.
- This is disabled when [Mode] is [Manual]. Adjust the focus by turning the focus ring of the lens when this mode is set.

You can also check the live view images of multiple cameras at the same time.



Note

- Live view continues even if Auto Screen Adjustment is started.
  However, live view images may temporarily disappear during various shooting with the Auto Screen Adjustment function.
- The live view images of all of the cameras in the camera list are displayed in the live view of multiple cameras.
  However, when there are multiple cameras with USB connections connected, the following restrictions apply to the live view of multiple cameras.
  - If a camera with a USB connection is selected immediately before switching to the live view of multiple cameras, the live view images of the cameras with USB connections that were not selected will be displayed all black.
  - If a camera with a LAN connection is selected immediately before switching to the live view of multiple cameras, the live view images of the cameras with USB connections except the camera with a USB connection that has the smallest ID number will be displayed all black.
- Display with live view of multiple cameras is slow compared with live view of a single camera.
- The live view images of multiple cameras cannot be resized even by resizing the window.

Operation by Gamepad

Operation using a gamepad is supported for some functions of this application. This enables intuitive operation since you do not need to make adjustments while alternately looking at the projected images and computer screen.

Note

- Operation by gamepad is supported for the following functions. Operation for functions other than the following requires a computer keyboard and mouse as previously.
  - Image correction by control point operation in the editing area during geometry correction
  - Cursor selection and movement during auto screen adjustment
- Operation by gamepad is supported for cursor selection and movement during auto screen adjustment by all models that support the Auto Screen Adjustment function, but it is only supported for image correction by control point operation in the editing area during geometry correction by some models.
- Only a gamepad that is compatible with XInput can be used. Operation is not guaranteed for other APIs or for functions extended by individual makers.

Gamepad Operation Preparation

■ Projector connection

Use a LAN cable to connect the projector to the computer.

■ Gamepad connection

Connect the gamepad to the computer.

Note

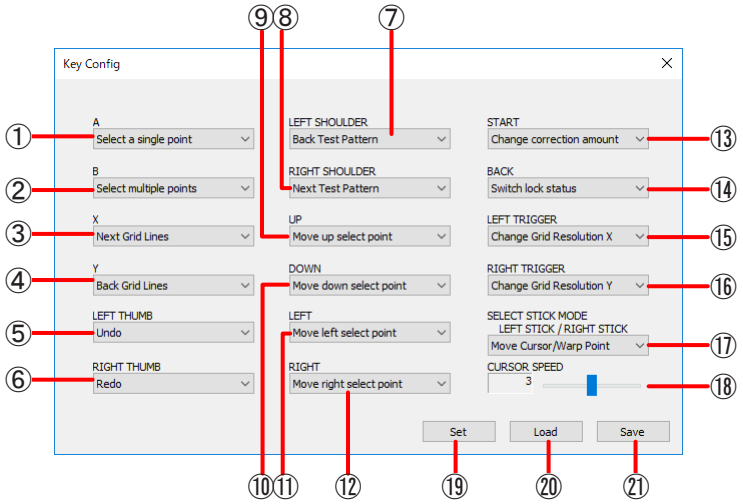
- For details on how to connect the gamepad to the computer, refer to the operating instructions of the gamepad.
- If multiple gamepads are connected, only the one that was connected first can be used with this application. If the gamepad being used is disconnected, only the subsequently connected gamepad can be used.

Gamepad Operation during Geometry Correction

You can use a gamepad to perform image correction by control point operation in the editing area during geometry correction. The function assignment for each key of the gamepad can be customized to make the gamepad easier to use.

Key Config screen

Change the function assignment for each key of the gamepad from the Key Config screen.



① **A**

Select the operation for when the [A] button is pressed.

② **B**

Select the operation for when the [B] button is pressed.

③ **X**

Select the operation for when the [X] button is pressed.

④ **Y**

Select the operation for when the [Y] button is pressed.

⑤ **LEFT THUMB**

Select the operation for when the left thumbstick is pushed in.

⑥ **RIGHT THUMB**

Select the operation for when the right thumbstick is pushed in.

⑦ **LEFT SHOULDER**

Select the operation for when the left shoulder is pressed.

⑧ **RIGHT SHOULDER**

Select the operation for when the right shoulder is pressed.

⑨ **UP**

Select the operation for when the up button of the directional pad is pressed.

⑩ **DOWN**

Select the operation for when the down button of the directional pad is pressed.

⑪ **LEFT**

Select the operation for when the left button of the directional pad is pressed.

⑫ **RIGHT**

Select the operation for when the right button of the directional pad is pressed.

⑬ **START**

Select the operation for when the [START] button is pressed.

⑭ **BACK**

Select the operation for when the [BACK] button is pressed.

⑮ **LEFT TRIGGER**

Select the operation for when the left trigger is pressed.

⑯ **RIGHT TRIGGER**

Select the operation for when the right trigger is pressed.

Note

- The following functions can be assigned to [A] to [RIGHT TRIGGER].

Function	Description
Select a single point	Select one control point or one area.
Select multiple points	Select multiple control points or multiple areas while keeping the already selected control point selected.
Move up select point	Move the position of the selected control point up by one grid.
Move down select point	Move the position of the selected control point down by one grid.
Move left select point	Move the position of the selected control point left by one grid.
Move right select point	Move the position of the selected control point right by one grid.
Switch lock status	Switch between lock and unlock for all grid intersection points.
Change correction amount	Change the correction amount of the control point.
Previous Test Pattern	Change to the previous test pattern.
Next Test Pattern	Change to the next test pattern.
Previous Grid Lines	Change to the previous grid line display color.
Next Grid Lines	Change to the next grid line display color.
Change Grid Resolution X	Increase the number of grid lines in the horizontal direction by one.
Change Grid Resolution Y	Increase the number of grid lines in the vertical direction by one.
Switch Transfer Mode	Switch between [Manual Transfer] and [Auto Transfer].
Send data	Transfer the correction data when [Auto Transfer] is [OFF].
Undo	Undo.
Redo	Redo.
Move Cursor to Default	Select the top left grid intersection point and align the mouse cursor.
Unable	Disable the button.

- The same function can be assigned to multiple buttons.

⑰ **SELECT STICK MODE**

Select the operations for when the left and right thumbsticks are lowered.

Move Cursor/Warp Point: Move the mouse cursor with the left thumbstick and perform control point correction with the right thumbstick.

Warp Point/Move Cursor: Perform control point correction with the left thumbstick and move the mouse cursor with the right thumbstick.

⑱ **CURSOR SPEED**

Specify the speed of mouse cursor movement.

Input range: 1 to 5

⑲ **Set**

Reflect the current function assignment for each key and close this screen.

⑳ **Load**

Load a file containing the function assignment for each key.

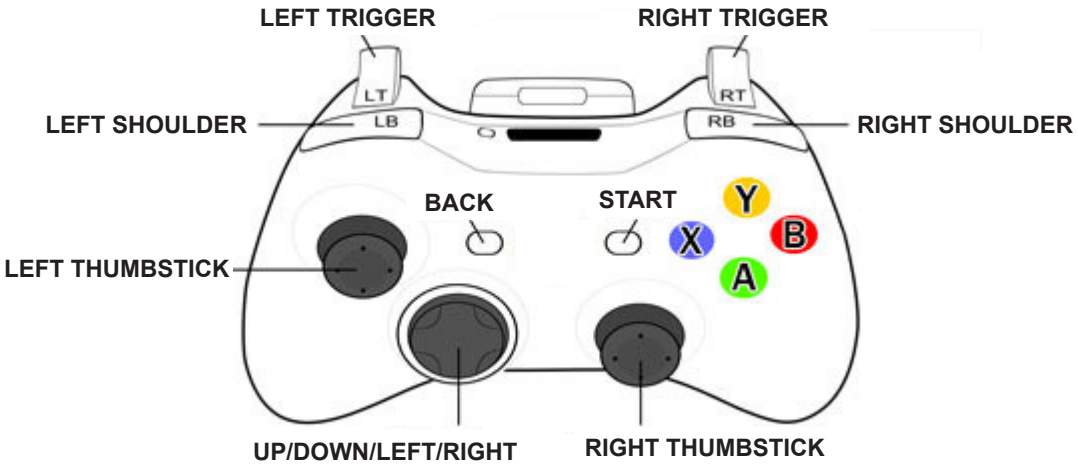
㉑ **Save**

Save the function assignment for each key to a file.

Note

Specify [Unable] for a button to which you do not wish to assign a function (disable the button). However, you cannot disable the function assignment of when the left and right thumbsticks are lowered.

For the gamepad key layout, refer to the following diagram. Please note that the layout may differ depending on the maker.



Operation method

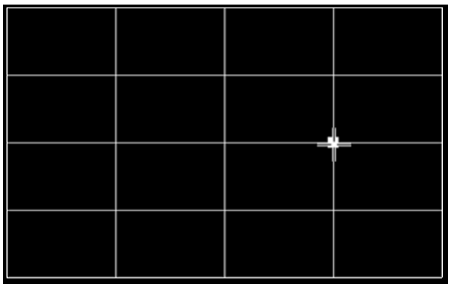
■ Selecting the control points

To select a single control point, perform the following operation.

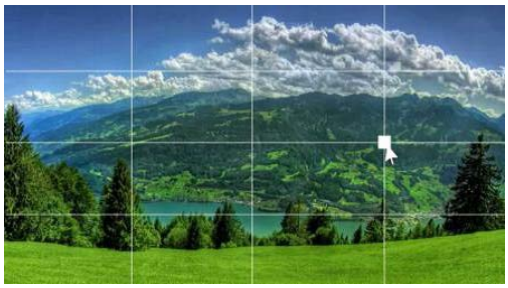
1 **Move the mouse cursor to the grid intersection point that you wish to select with a thumbstick.**

2 **Click the button with [Select a single point] assigned.**

3 **The intersection point specified by the mouse cursor is selected as the control point. At this time, a white ☐ appears at the same position on the projected image. If a control point is already selected, it is deselected.**



Screen in this software (control point selected)



Projected image with control point selected

To select multiple control points, perform the following operation.

1 Move the mouse cursor to the grid intersection point that you wish to select with a thumbstick.

2 Click the button with [Select multiple points] assigned.

3 The intersection point specified by the mouse cursor is selected as the control point. At this time, white ☐ appear at the same positions on the projected image. If a control point is already selected, a control point is added without deselecting that control point.

4 Repeat steps 1 to 3 for the control points you wish to select.

To select the control points of one vertical or horizontal line, perform the following operation.

1 Move the mouse cursor onto a line between two grid intersection points with a thumbstick.

2 Click the button with [Select a single point] assigned.

3 All intersection points existing on the line are selected as control points. At this time, white ☐ appear at the same positions on the projected image. If a control point is already selected, it is deselected.

To add control points of one line while a control point is already selected, click the button with [Select multiple points] assigned instead in steps 1 to 3 above.

To select control points with area specification, perform the following operation.

1 Move the mouse cursor to a place near a grid intersection point you wish to select with a thumbstick.

2 Move the cursor while holding down the button with [Select a single point] assigned to enclose an area.

3 Release the held down button.

4 The grid intersection points included in the rectangular area enclosed by moving the cursor are selected as the control points. At this time, white ☐ appear for the number of selected intersection points at the same positions on the projected image. If a control point is already selected, it is deselected.

To add control points with area specification while a control point is already selected, hold down the button with [Select multiple points] assigned instead in steps 1 to 4 above.

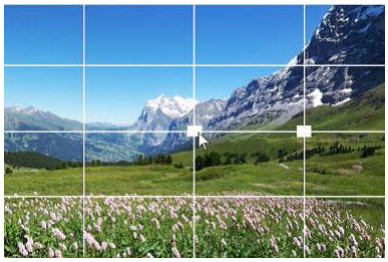
Note

Area selection cannot be performed if an already selected control point exists below the mouse cursor when selecting an area.

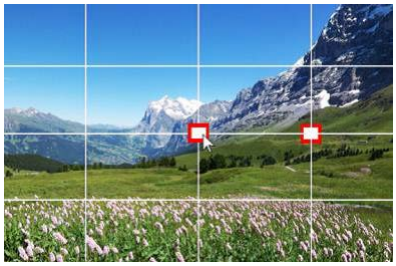
■ Moving (correcting) the control points

When a control point is selected, move the control point by lowering the thumbstick with control point correction assigned in any direction.

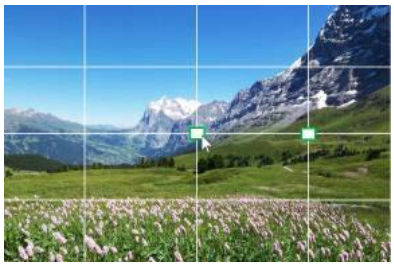
A control point normally moves in 1-pixel increments, but the amount of movement when the thumbstick is lowered can be changed by clicking the button with [Change correction amount] assigned. At this time, a red (coarse adjustment: 4 pixels) or green (fine adjustment: 0.2 pixels) line is displayed around the white □ at the control point on the projected image.



When normal movement amount



When coarse adjustment



When fine adjustment

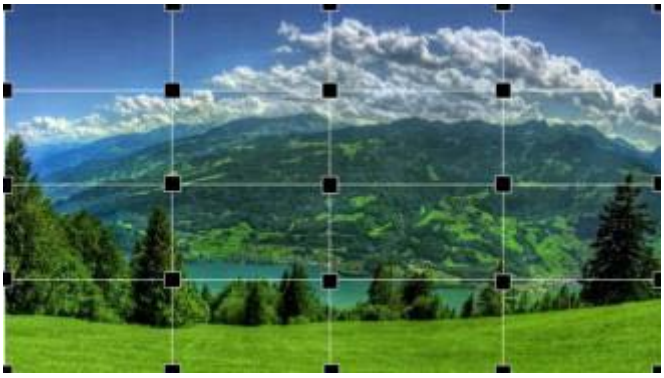
Note

When [Auto Transfer] is OFF, the corresponding information can be reflected in the projected image by clicking the button with [Send data] assigned or clicking [Manual Transfer] on the application screen.

■ Locking/unlocking control points

Clicking the button with [Switch lock status] assigned locks or unlocks all grid intersection points in one go.
If this operation is performed while there is a grid intersection point locked at even one place, it is unlocked.

The locked grid intersection points are indicated by black ■ at the same positions on the projected image.



If you select a single locked grid intersection point or multiple locked grid intersection points, just the selected control point(s) will be unlocked and selected as a new control point(s).

Note

If control point selection is performed on a line between multiple locked control points, none of the control points will be unlocked.

■ Changing the control points

When the button with [Move up (down/left/right) select point] assigned is clicked while just one control point is selected, the control point selection position changes by moving one grid up (down/left/right).

Note

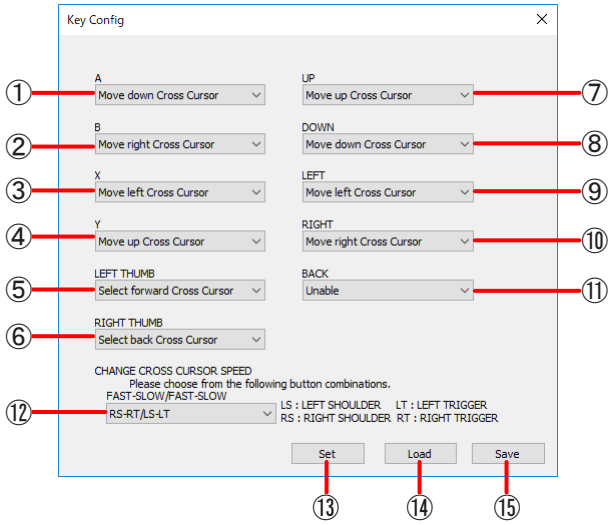
- While multiple control points are selected, the control point positions will not change even if you perform this operation.
- If the destination for control point movement is locked, that control point is kept locked.
- If some error occurred or a state that needs to be checked occurred during operation, you will be notified by the gamepad vibrating.
  - When the control point movement amount was too large (= image correction amount was too large) while the [Alert Distortion] check box is selected
  - When the button with [Change Grid Resolution X] (or [Change Grid Resolution Y]) assigned is clicked while the number of horizontal grids has reached the limit
  - When an error occurred with communication between the projector and PC

Gamepad Operation during Auto Screen Adjustment

You can use a gamepad to perform cursor selection and movement during auto screen adjustment.
The function assignment for each key of the gamepad can be customized to make the gamepad easier to use.

Key Config screen

Change the function assignment for each key of the gamepad from the Key Config screen.



① **A**

Select the operation for when the [A] button is pressed.

② **B**

Select the operation for when the [B] button is pressed.

③ **X**

Select the operation for when the [X] button is pressed.

④ **Y**

Select the operation for when the [Y] button is pressed.

⑤ **LEFT THUMB**

Select the operation for when the left thumbstick is pushed in.

⑥ **RIGHT THUMB**

Select the operation for when the right thumbstick is pushed in.

⑦ **UP**

Select the operation for when the up button of the directional pad is pressed.

⑧ **DOWN**

Select the operation for when the down button of the directional pad is pressed.

⑨ **LEFT**

Select the operation for when the left button of the directional pad is pressed.

⑩ **RIGHT**

Select the operation for when the right button of the directional pad is pressed.

⑪ **BACK**

Select the operation for when the [BACK] button is pressed.

Note

- The following functions can be assigned to [A] to [BACK].

Function	Description
Move up Cross Cursor	Move the selection state cursor up.
Move down Cross Cursor	Move the selection state cursor down.
Move left Cross Cursor	Move the selection state cursor left.
Move right Cross Cursor	Move the selection state cursor right.
Select next Cross Cursor	Select the next cursor.
Select previous Cross Cursor	Select the previous cursor.
Unable	Disable the button.

- The same function can be assigned to multiple buttons.

⑫ **CHANGE CROSS CURSOR SPEED**

Select what combination of the left and right shoulders and triggers to assign changing the selected cursor movement speed.
The cursor movement speed increases or decreases by performing operation while pressing the keys specified here.

⑬ **Set**

Reflect the current function assignment for each key and close this screen.

⑭ **Load**

Load a file containing the function assignment for each key.

⑮ **Save**

Save the function assignment for each key to a file.

Note

- Start of adjustment is assigned to the [Start] button so another function cannot be assigned.
- Cursor movement is assign for the operation when the left and right thumbsticks are lowered so another function cannot be assigned.
- Specify [Unable] for a button to which you do not wish to assign a function (disable the button). However, you cannot disable the function assignment of the left and right shoulders and triggers.

Operation method

Position the cursors according to the shape of the screen while checking the images projected on the actual screen.

■ Selecting a cursor

Select the next cursor by clicking the button with [Select next Cross Cursor] assigned, and select the previous cursor by clicking the button with [Select previous Cross Cursor] assigned.

■ Moving cursor

Move the position of the selected cursor up (down/left/right) by clicking the button with [Move up(down/left/right) Cross Cursor] assigned. Also, move the position of the selected cursor by lowering either the left or right thumbstick in any direction. Ordinarily, movement is 8 dots, but you can move the selected cursor 64 dots by performing the selected cursor movement operation while holding down the button for which movement at high speed is assigned and move the selected cursor 1 dot by performing the selected cursor movement operation while holding down the button for which movement at low speed is assigned with [CHANGE CROSS CURSOR SPEED].

When positioning of the cursors is completed, start auto screen adjustment for geometry correction and edge blending by clicking [START] button of the gamepad.

Note

Selecting the screen type, changing the number of cursors, and setting the edge blending and margin areas are not possible with a game pad. Configure the settings using a computer keyboard and mouse as previously.

Frequently Asked Questions

Check the following points once more before requesting repair.

Projector is not recognized.

- Has the projector's power been turned on?
- Is the projector supported by the software application? ☞ "Projectors supported" (page 10)
- Have the units been connected properly? ☞ "Preparation" (page 10)
- Has the projector's network been set up correctly? ☞ "Setting the Projector" (page 11)
- Has an attempt been made to connect 100 or more projectors?

No connection can be made between my projector and my computer

- When Windows Firewall has been detected

Enter "Windows Defender Firewall" in the search box of the taskbar and select [Windows Defender Firewall] in the results.
Is this software registered in [Allow an app or feature through Windows Defender Firewall]?
If it is not, add this software in [Allow an app or feature through Windows Defender Firewall].

- Adding procedure

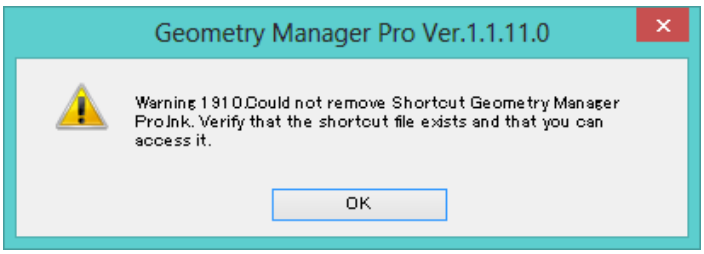
1. Enter "Windows Defender Firewall" in the search box of the taskbar and then select [Windows Defender Firewall] in the displayed search results.
2. When the <Windows Defender Firewall> window appears, click [Allow an app or feature through Windows Defender Firewall].
3. When the <Allow apps to communicate through Windows Defender Firewall> window appears, click [Change settings] → [Allow another app...].
4. When the <Add an app> dialog box appears, select [Geometry Manager Pro] and click the [Add] button.
   If [Geometry Manager Pro] is not in the list, click [Browse], select [GeometryGUI.exe], and click [Open]. [Geometry Manager Pro] or [GeometryGUI] appears in the [Apps] column.
5. [Geometry Manager Pro] or [GeometryGUI] appears in the [Allowed apps and features] column.
6. Select [Private] or [Public] for the network you want to allow connection to and click to select the check box.
7. Click [OK] in the <Allow apps to communicate through Windows Defender Firewall> window.
8. This software will now be added to the Windows Defender Firewall's exception application list.

<When another firewall has been detected>

Are any firewall-containing applications installed?
If any applications which contain firewalls are installed, the installation may not complete.
(The firewall function may activate without launch of the application if the application has already been installed.)
If this occurs, firewall settings must be changed in order to allow connection to the network.
See the User's Manuals for all applications containing firewalls to perform these settings.

Messages that appear when an attempt to uninstall or update the software is made

<Is the "Warning 1910. Could not remove ..." message displayed?>
If an NVIDIA driver is installed on the computer, the following message may appear.



Click [OK] to continue an uninstall or update procedure.
Although uninstalling the software will also remove the desktop shortcut icons, they will be regenerated when you start up the computer next time. Manually delete the shortcut icons.

Files cannot be saved.

- Has an attempt been made to save a file that includes values that exceed the range which can be set in the projector?
- Is there enough free memory on the hard disk?
- Do you have the authority to access the folder in which the file is to be saved?

Image correction cannot be performed.

- Have settings been sent to the projector that exceed the range which can be set in the projector?
- Has the projector's power been turned on?
  Some items cannot be set if the projector's power is not on.
- Are the projector's input connectors set correctly, and have the correct signals been input?
  Some items cannot be set depending on the input connector settings, the types of signals input and whether or not signals are present.

The bitmap used for masking purposes cannot be loaded.

- Has an attempt been made to load bitmap data which is not in the 1-bit monochrome format?
- Does the bitmap have the appropriate size?
  Bitmaps smaller than 8 x 8 pixels and bitmaps larger than 1920 x 1200 pixels (when the resolution of the projector is 1920 x 1200 dots or 1400 x 1050 dots) or 4096 x 2400 pixels (when the resolution is other than the aforementioned) cannot be used for masking.

Cannot connect to the camera (Auto Screen Adjustment).

- Is the camera turned on?
- Is the camera connected to the computer properly?
- Is there a large number of data files stored on the SD card inserted in the camera?
  If camera connection fails, try removing the SD card and performing the camera connection settings again.
- If there is any SD card inserted in the computer or there is any device other than a camera connected via USB, remove them all and then reconfigure the settings.

Auto Screen Adjustment does not start.

- You may not be able to execute Auto Screen Adjustment depending on the projector's settings. For details on operations restricted by the projector's settings, check the information found on the software download page after logging in to PASS on the following website.
  https://panasonic.net/cns/projector/pass/

The image does not fit exactly on flat screens (Auto Screen Adjustment).

- The projected image may not match the edges of the screen exactly if the screen is sagging.
  If the top and bottom edges are off:
  In the screen setting screen, set the screen type to [Horizontal Curve], and specify at least 3 cursors according to the shape of the screen.
  If the left and right edges are off:
  In the screen setting screen, set the screen type to [Vertical Curve], and specify at least 3 cursors according to the shape of the screen.

Geometry correction results in an images that appears curved (Auto Screen Adjustment).

- This occurs on soft curved screens and on screens with heavy sag.
  Correction is performed so that the image appears straight from the point of view of the camera.
  Position to the camera so that it is as close as possible to directly facing the screen.

An exposure adjustment error occurs on the camera (Auto Screen Adjustment).

- If the projector is too bright or the screen's gain is high, for example, an exposure adjustment error may occur during camera settings configuration.
  In such cases, attach an ND filter to the camera lens, or lower the brightness of the projector before performing adjustment again.

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