D-ILA Projector
"JVC Projector Calibration Software 11"
INSTRUCTIONS

About the marks being used in this manual

NX9/NX7 refers to as explanations/instructions for DLA-NX9/NX7 series.
NX5 refers to as explanations/instructions for DLA-NX5 series.
Items without markings are for all models.

About "JVC Projector Calibration Software"

"JVC Projector Calibration Software" is a tool that enables you to use the projector in an optimal condition at all times with the use of a commercially available optical sensor.

■ Calibration Feature

By performing a precise calibration with easy procedures in optimizing the projected images, which changes depending on the installation conditions, such as installation position of the main unit, lens shift/zooming position, you can enjoy high-quality images that are suitable for the installation conditions. You can also maintain the projector in an optional state by correcting distortions, such as those in the color balance, which are caused by the prolonged use of the projector.

■ Environment Settings

Adjusts the video settings according to the installation environment to minimize any influence on the image quality by objects, such as white walls or indirect illumination.

■ Import/Export Image Quality Adjustment Data

Enables you to save the image setting data to a PC from the projector, or imported from a PC to the projector via the LAN terminal.

■ Gamma Data Adjustment Feature

Allows you to adjust the gamma curve of the projector according to your preference.

* "JVC Projector Calibration Software" is designed to adjust gamma and color display by changing the settings of the projector.
* Please note that setting of the projector is changed by using this software.

Required Equipment

- **Projectors that support calibration**
  Models supported:
  DLA-NX9/NX7 series: DLA-NX9, DLA-NX7, DLA-N11, DLA-N8, DLA-N7, DLA-RS3000, DLA-RS2000
  DLA-NX5 series: DLA-NX5, DLA-N6, DLA-N5, DLA-RS1000
- **PC (computer)**
- **LAN cable**
- **Optical sensor**
  Models supported: Spyder5ELITE/PRO by Datacolor
  i1 Pro2 by X-Rite

* Spyder5ELITE/PRO sensor is required when using the Environment Settings feature.

B5A-3025-21

System Requirement

To make use of this software, your hardware and software must meet the following specifications.

PC (Computer) OS supported	Windows 7 (32-bit, 64-bit) Windows 8 (32-bit, 64-bit) Windows 10 (32-bit, 64-bit)
Memory	1 GB or more
HDD	256 MB or more
Required functions	.NET Framework 3.0 / 3.5 *1 USB port LAN port

*1 When using Windows 8 and Windows 10, install .NET Framework 3.5 SP1 or enable the function from the Control Panel. For details on how to install, refer to the Microsoft website.

■ Caution

The above requirements do not guarantee that this software will work on your computer.
Macintosh systems are not supported.

Operation Procedure for the Calibration Adjustment

1. Install the software on your PC (P. 3)
2. Connect the main unit and your PC via LAN cable
3. Projector and PC Setup (P. 4)
4. Start up the software (P. 7)
5. Connect the optical sensor
6. Calibration (P. 8)

Preparation for the Calibration Adjustment

Installing the Software

■ Pre-installation Check

- ♦ Before starting the installation, ensure that no program is running.
- ♦ During installation or calibration, set the PC to the administrator mode, and disable the screen mode and energy-saving mode of the PC.
- ♦ Do not connect the optical sensor to the PC before installing the driver.

■ Installing Software

Double-click the download file “JVC_PJ_Calibration**_en_v***.zip” to start installation. Download the file to a directory, and unzip the file.
The following file is created.

- **“JVC_PJ_Calibration**_v***.msi”**
  Double-click “JVC_PJ_Calibration**_v***.msi” to start installation.

1. “Welcome to the JVC Projector Calibration Software Setup Wizard” window appears. Click the [Next] button.
2. “Select installation Folder” window appears. You can proceed to the next step with the destination unchanged, or designate a folder if necessary.
3. “Confirm installation” window appears. Click the [Next] button.
4. After installation is complete, an “Installation complete” window appears. Click the [Close] button to exit the wizard. Check to ensure that short-cut icons are automatically created both in the Start menu and on the Desktop.

■ Caution

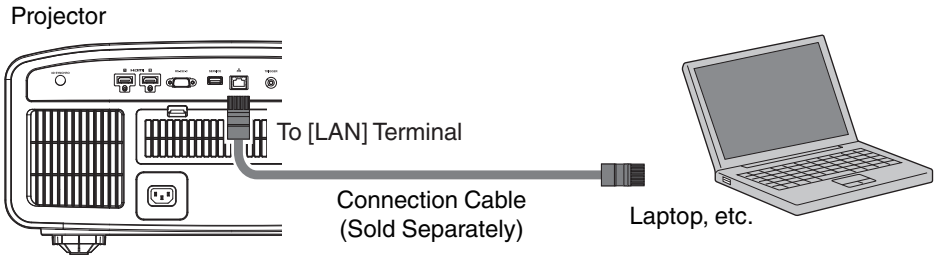
* This software does not run on its own. To run the program, you need to connect the optical sensor to a PC via USB cable, and the PC to a projector via LAN cable.

■ Installing the Optical Sensor Driver

Install the driver of the optical sensor to be used.
Do not run the software supplied with the optical sensor when using this calibration software.

Projector and PC Setup

■ Connecting the Projector to a PC directly

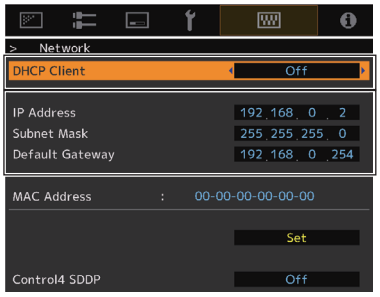


Connect the projector to a PC via LAN cable.

Set the TCP/IP for the PC and “Network” of the projector.

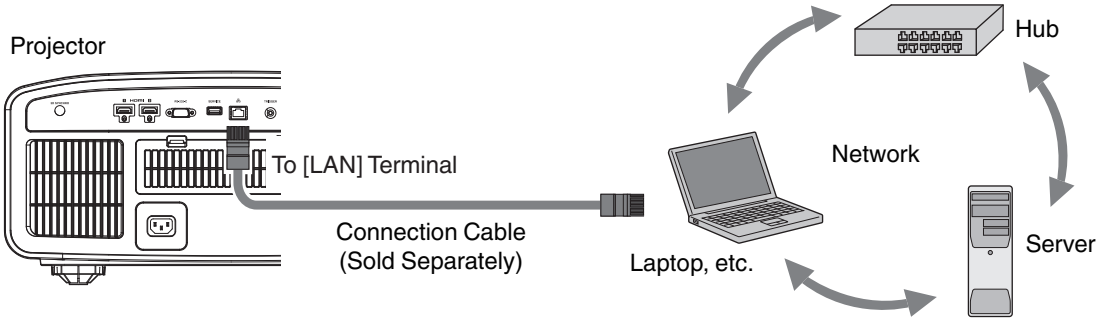
- **Network Settings of the Projector**

  Open the “Network” item under the “Function” tab in the menu.
  Set “DHCP Client” to “Off”.
  Set the “IP Address” of the projector to an address different from that of the PC.
  Example: PC [192 168 0 1]
  Projector [192 168 0 2]
  Set “Subnet Mask” and “Default Gateway” of the projector to the same values as the PC.
  Example: Subnet Mask [255 255 255 0]
  Default Gateway [192 168 0 254]
  After pressing “Set”, press OK to apply new settings.



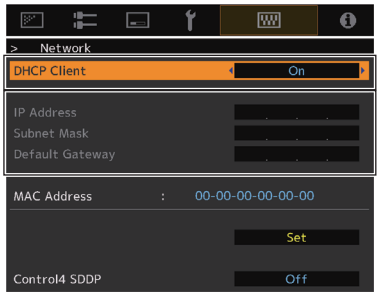
* For details on the PC settings, refer to the instruction manual of the PC. Procedures for setting up Windows7 are described in P. 19.
* If the DHCP server is running on the PC that is directly connected to the projector, set “DHCP Client” to “Off”, and then press “Set”.

■ Connecting the Projector to a Network



Connect the projector to a network connection device (hub, etc.) via LAN cable.

Open the “Network” item under the “Function” tab in the menu.
If you want to use the DHCP server, set “DHCP Client” to “On”, and then press “Set”. Acquisition of the IP address starts automatically.
If the IP address is designated by the network administrator, set “IP Address”, “Subnet Mask”, and “Default Gateway” to the designated values.
After pressing “Set”, press OK to apply new settings.

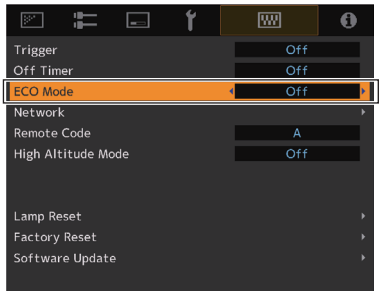


* For details on the PC settings, refer to the instruction manual of the PC. Procedures for setting up Windows7 are described in P. 19.
* For more details on the network, it is recommended that you refer to network-related books.
* Settings may vary depending on the network device and control procedure for the network to be connected.
* For details on the IP address and other settings, including whether the use of a DHCP server is allowed, consult your network administrator.

Calibration

■ Precautions Prior to Use of Calibration

- Calibrated result might be different from the factory default data, depending on the operating environment.
- During calibration, set the PC to the administrator mode, and disable the screen mode and energy-saving mode of the PC.
- After turning on the power of the projector, set to the Picture Mode for performing calibration. Start calibration after waiting for about 30 minutes.
- Make sure the brightness of the ambient light in the room is the same as that of the operating environment where the projector is used.
- Do not cast a strong ambient light directly on the screen.
- Set the “ECO Mode” of the projector to “Off” when the calibration software is running.

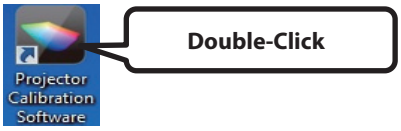


- Do not use the remote control and the operation panel when the calibration software is running.
- Do not set to the HIDE mode when the calibration software is running.
- The calibration does not work when displaying 3D image.
- Calibration does not work when Picture Mode has been set to Frame Adapt HDR. Set to another Picture Mode.
- Calibration does not work when Color Profile has been set to Off. Set to another Color Profile before performing the calibration.
- Calibration does not work when Lens Aperture has been set to “Auto 1” or “Auto 2”. Set the lens aperture to “Manual” before performing the calibration.
- If an error message is prompted while using the calibration software, close the application and restart the projector. Wait at least 5 minutes before restarting.
- If the application is ended due to the error message while backup, importing or exporting is in progress, restart the PC, and perform the operations again.

* Upon saving the data after performing calibration, a backup file will be saved automatically to the folder selected in “Setting”. All data of the projector set prior to this process will be overwritten.

Starting up the Software

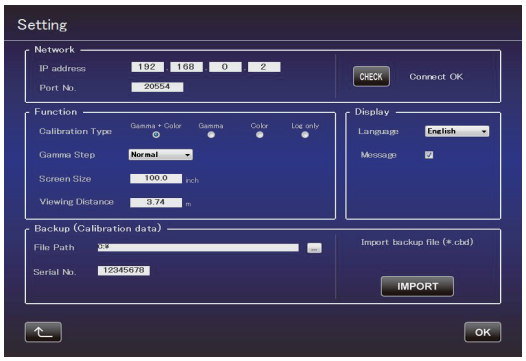
Double-click the “JVC Projector Calibration software” icon on the Desktop.



● Setting

Use this feature to specify the various settings.





***1** Click the “Setting” button.

***2** Specify the various settings.

Network

IP Address	Enter the IP address for the projector on the network. To view the IP address of the projector, refer to the “Projector and PC Setup” item. After entering the IP address, click the [Check] button to check the projector’s connection with the PC.
Port No.	Leave the value unchanged unless you need to alter it.

Function

Calibration Type (*1)	Select a type of calibration.
Gamma Step Quality Normal Speed	For setting the accuracy level of gamma calibration. 33 steps 20 stels (default) 9 steps
Screen Size	Enter a screen size for viewing.
Viewing Distance	Enter a viewing distance.

Display

Language	Select a language.
Message	Deselect this checkbox if you do not want to display descriptions on how to operate the different features.

Backup

File Path	Select the location for storing the backup file.
Serial No.	Enter the projector’s serial no.

(*1) Calibration Type
- Gamma+Color
  Calibrate gamma and color.
- Gamma
  Calibrate gamma only.
- Color
  Calibrate color only
- Log only
  Log the current status.

* Upon saving the data after performing calibration, a backup file will be saved automatically to the selected folder.

File name “Serial No._Set Picture mode_Year-Month-Date-Time.cbd”
Note that the factory default data will be saved as “Serial No._init_Year-Month-Date-Time.cbd”. Be careful not to delete this file.

***3** Be sure to click the “OK” button at the bottom right to save the settings before proceeding to the next step.

■ Recovering Backup Data

***1** Click the “IMPORT” button.

***2** Select the backup data file from the folder, and click “Open”.

***3** The backup data is imported to the projector.

Calibration Procedure

Corrects the image quality which changes depending on the installation condition (such as installation position of the main unit, lens shift/zooming position), and distortions (such as those in the color balance), which are caused by the prolonged use of the projector.



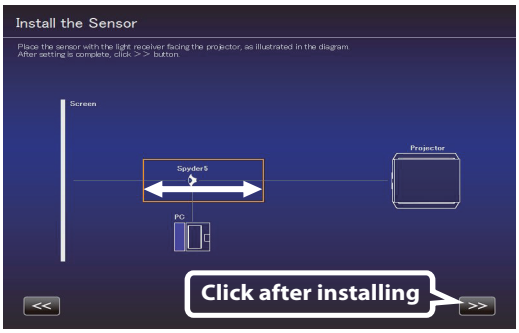
1 Connect the optical sensor to the PC and click the “Calibration” button.

2 Click the button of the optical sensor in use.

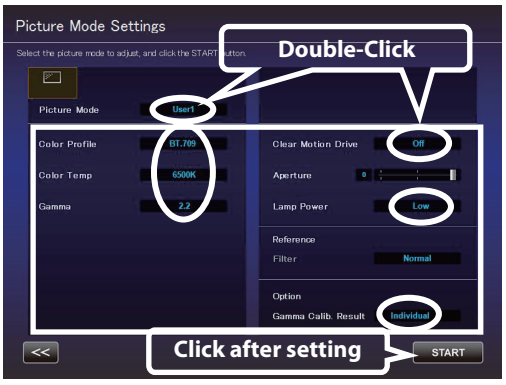
* Before using i1 Pro2, you need to perform initialization on the optical sensor. Refer to the instruction manual of the optical sensor for instructions on placing the sensor on the calibration plate that comes with the sensor. Then connect to the PC and click the button.



3 Install the optical sensor. Adjust the position of the sensor such that it is within the range indicated in orange on the software as show in the figure on the right.
If you are using Spyder, install the sensor between the projector and the screen with its light receiver facing the projector.
If you are using i1 Pro2, you can install the sensor with the light receiver facing the screen. Measure the light reflected from the screen.



4 Double-click the Picture Mode, and select a Picture Mode for calibration from the pull-down menu.
Double-click an item such as Color Profile, Color Temp, or Gamma, and select a mode for calibration from the pull-down menu.
Slide Aperture to make a selection.
Change the Option setting as necessary.
After setting is complete, click “START”.



■Option (Gamma Calib. Result)

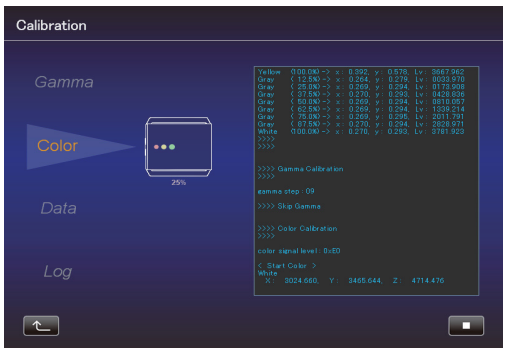
Select the range for reflecting the gamma calibration result.
Select “Individual” if accuracy is your priority.

Individual	The calibration result is reflected only in the current mode. However, even if another Picture Mode has been selected, the calibration result is reflected if the setting values of Lamp Power and Filter are the same.
Reflect to All	The calibration result is reflected in all modes.

* The Profile Name being created and saved won’t be displayed when Custom 1 to 4 is selected, but shown as Custom 1 to 4 instead.
* Click the “<<” button to go back to the previous screen if Picture Mode does not appear. Proceed to this screen again.
* Filter is set automatically in accordance to the selected Color Profile.
* Set to the actual Picture Mode for image viewing before performing calibration. However, even if another Picture Mode has been selected, the calibration result for Color is reflected when the settings of Aperture, Lamp Power and Filter are the same.
* Calibration does not work in Frame Adapt HDR mode. Set to another Picture Mode and calibrate using the same Aperture, Lamp Power and Filter settings.

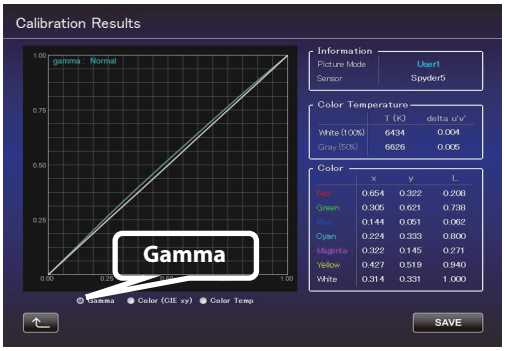
5 Calibration in progress.
While calibration is in progress, make sure that the surrounding light does not fluctuate.
Otherwise, it may affect the calibration results.

* Noise may appear on the screen when data writing is in progress.



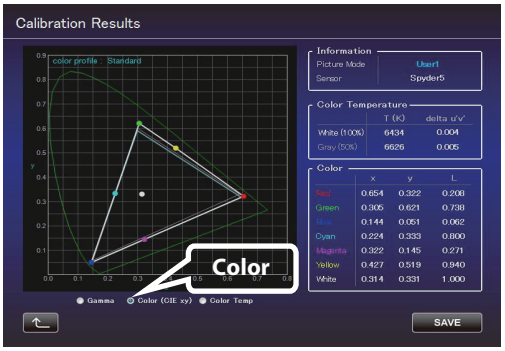
6 The results for each Calibration Type are displayed.

Gamma
Calibration results are shown in a white line.
The state before calibration is performed is shown in a blue line.
The green line represents Gamma 2.2.

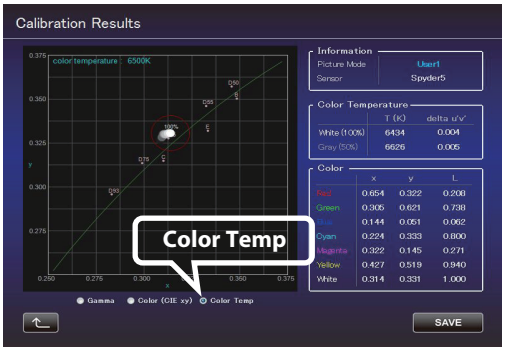


Color
Calibration results are shown in a white line.
The state before calibration is performed is shown in a blue line.
The pink line indicates the color gamut of Rec. 709.
The chromaticity of each color is indicated using x-y coordinates.

* The Profile Name being created and saved won't be displayed when Custom 1 to 4 is selected, but shown as Custom 1 to 4 instead.

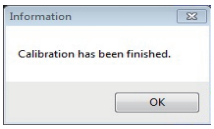


Color Temp
The chromaticity of the color temperature for each gray level is indicated by ● of the respective gray levels.
The red circle indicates the intended chromaticity xy ± 0.01.



7 Save the results if these are in order.

Click the "SAVE" button.
After saving is complete, below message is displayed.
Click "OK" (to return to the top menu).



To exit without saving the result, click  (to return to the top menu).



■ Caution

When i1 Pro2 is used, the calibration result includes the characteristics of the screen.
It is recommended to set the Screen Adjust function of the projector to off after calibration.

Creating a Color Profile

Use this feature to create a color profile that contains the color space, color temperature, and gamma information.



1 Click the “Create” button.

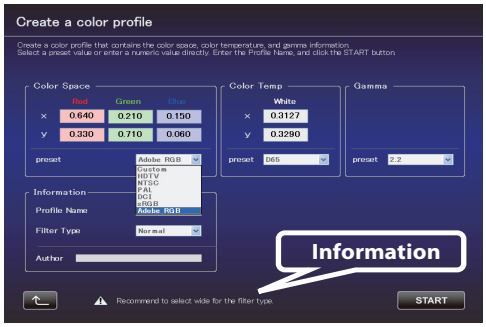
2 Create a color profile.

Select a Color Space and a Color Temp setting from the pull-down menu.
You can also enter a numerical value directly.

NX9/NX7 After Information is displayed, follow the instructions to select a Filter Type.

NX5 Filter Type selection is not necessary. (Fixed at Normal)

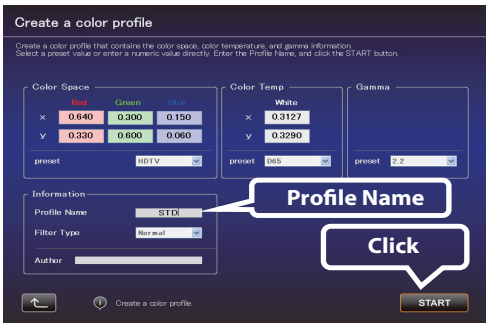
Select a Gamma setting from the pull-down menu.



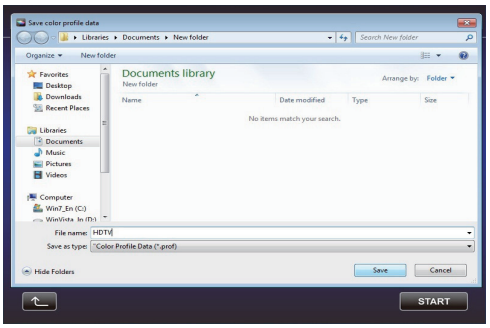
3 Enter a profile name.
(Not more than 10 one-byte ASCII characters. Extension of the created profile is “prof”.)

Click the “START” button after entering the profile name.

* To apply the color profile data to the projector, import it to the projector by using the Import feature.



Enter a file name and click “Save”.
You can enter the name of the creator in “Author”.
To exit, click (to return to the top menu).

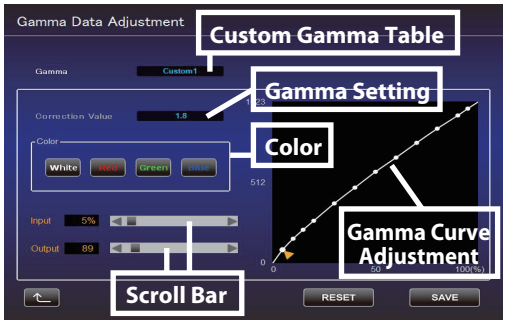


Gamma Data Adjustment Procedure

Use this feature to adjust the gamma data.



1 Click the “Gamma Data Adjustment” button.



2 Select the custom gamma table to be adjusted.

3 Select the gamma setting value to be set as the base value.

4 Select the color to be adjusted.

5 Use the mouse to adjust the gamma curve.
Adjustment can also be made using the scroll bars at the bottom left.

6 Click the “SAVE” button to save the newly created gamma data on the PC.

7 After the adjustment is complete, click  (to return to the top menu).

Import/Export Procedure

Use this feature to save/import picture quality setting data, or to import color profiles or gamma data.

1 Click the “Import/Export” button.



■ Import/Export Picture Data

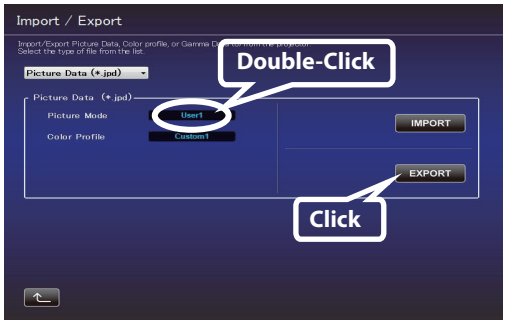
● Export Procedure

① Click the pull-down menu, and select “Picture Data (*.jpd)”.



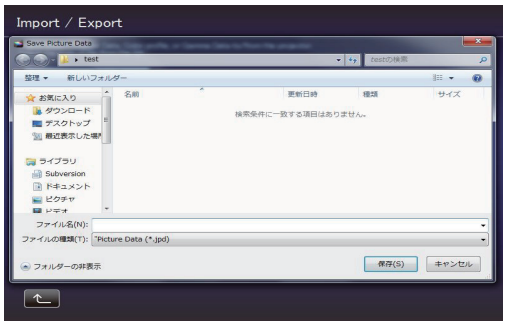
② Double-click the Picture Mode (User 1 to 6), and select the Picture Mode (User 1 to 6) to be exported from the pull-down menu. Click the “EXPORT” button.

* Click the “<<” button to go back to the previous screen if Picture Mode does not appear. Proceed to this screen again.



③ Select the destination for saving, and save the file after specifying the file name. (Extension “.jpd” is added upon saving the file.)

To exit, click  (to return to the top menu).



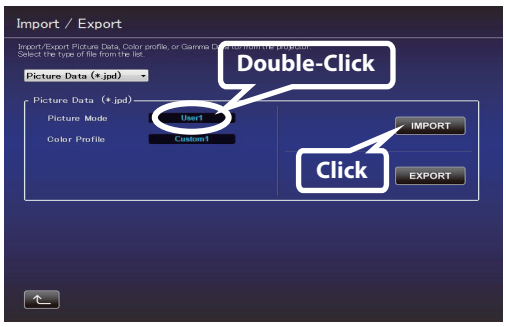
● Import Procedure

① Click the pull-down menu, and select “Picture Data (*.jpd)”.

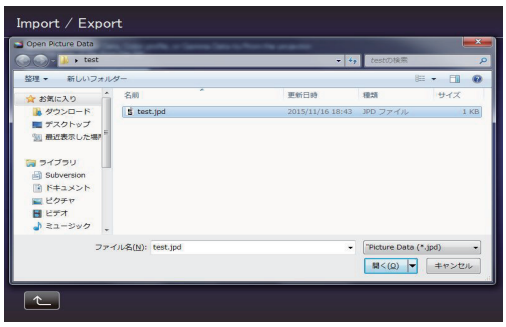


② Double-click the Picture Mode (User 1 to 6), and select the Picture Mode (User 1 to 6) to be imported from the pull-down menu. Click the “IMPORT” button.

* Click the “<<” button to go back to the previous screen if Picture Mode does not appear. Proceed to this screen again.

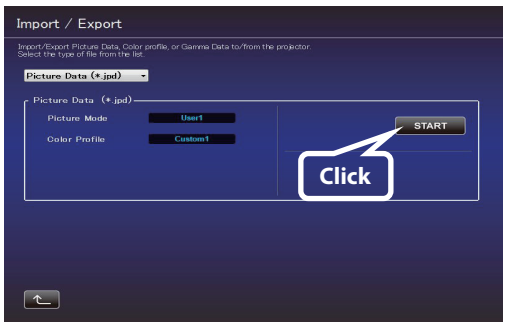


③ Select the file (***.jpd) from the location where it is stored.



④ Click the “START” button.

To exit, click (to return to the top menu).



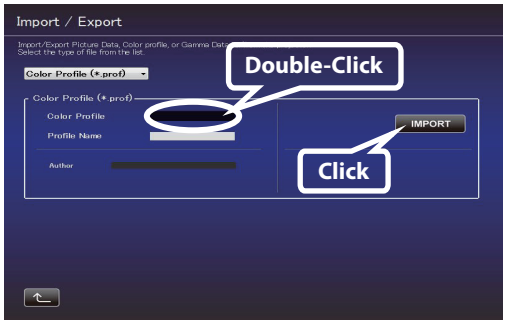
■ Import Color Profile

① Click the pull-down menu, and select “Color Profile (*.prof)”.

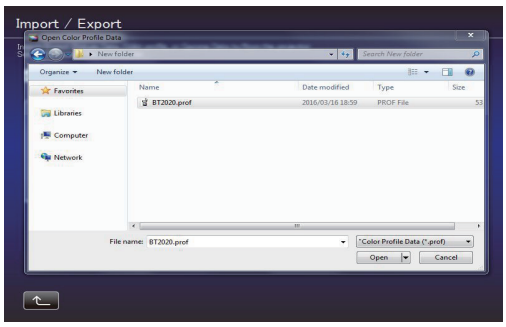


② Double-click the Color Profile (Custom 1 to 4), and select the Color Profile (Custom 1 to 4) to be imported from the pull-down menu.

③ Click the “IMPORT” button.



④ Select the file (***.prof) from the location where it is stored.



⑤ Click the “START” button.

To exit, click  (to return to the top menu).



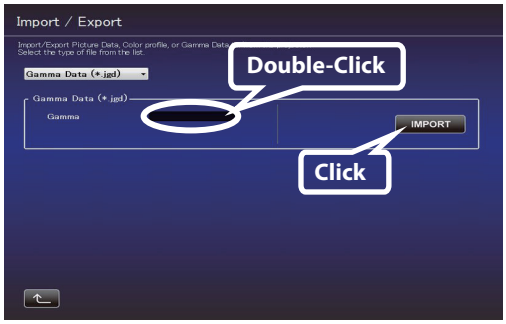
■ Import Gamma Data

① Click the pull-down menu, and select “Gamma Data (*.jgd)”.

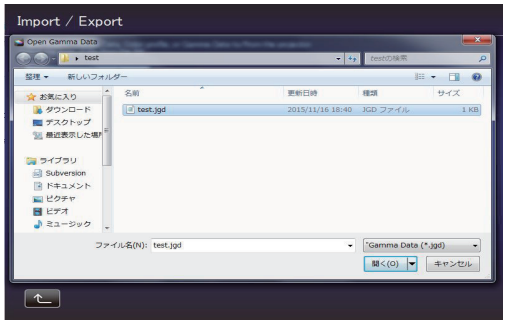


② Double-click Gamma (Custom 1 to 3), and select the Gamma (Custom 1 to 3) to be imported from the pull-down menu.

③ Click the “IMPORT” button.



④ Select the file (***.jgd) from the location where it is stored.



⑤ Click the “START” button.

To exit, click  (to return to the top menu).



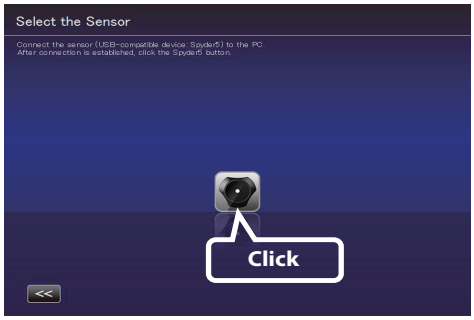
Environment Settings

Adjusts the video settings according to the installation environment to minimize any influence on the image quality by objects, such as white walls or indirect illumination.
Spyder5ELITE/PRO sensor is required when using the Environment Settings feature.



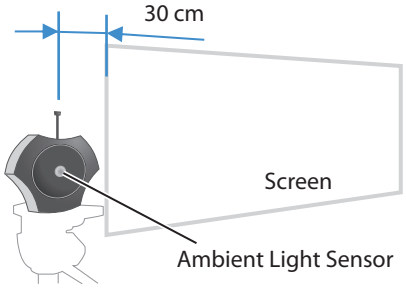
1 Click the “Environment Setting” button.

2 Connect the optical sensor to the PC.
After connection is established, click the “Spyder5” button.



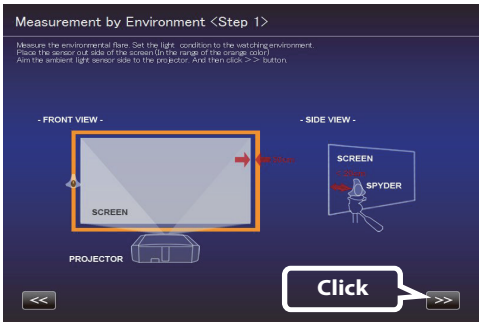
3 Install the Optical Sensor.
Measure the intensity of ambient light (amount of flare).
Make sure that the intensity of the ambient light is the same as that of the environment where the projector is used.
While measuring the ambient light, make sure that there are no changes in the surrounding conditions (light). Otherwise, the measurements may be affected.

Installation Example



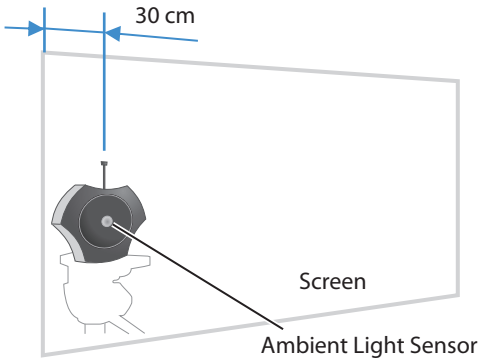
When measuring the intensity of ambient light, place the optical sensor parallel to the screen at a position where light from the projector does not fall directly on the optical sensor (approximately 30 cm away from the edge of the projected image). At the same time, make sure the ambient light sensor is facing the projector.

4 After installation is complete, click the “>>” button.



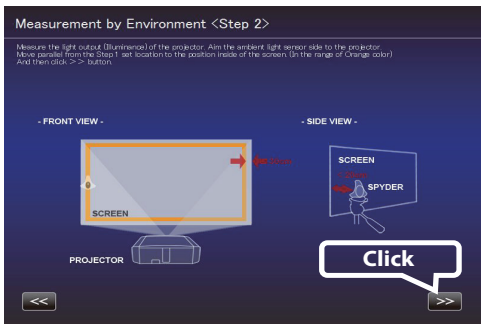
5 Install the Optical Sensor.
Measure the intensity of the projected light.
Make sure that the intensity of the ambient light is the same as that of the environment where the projector is used.

Installation Example

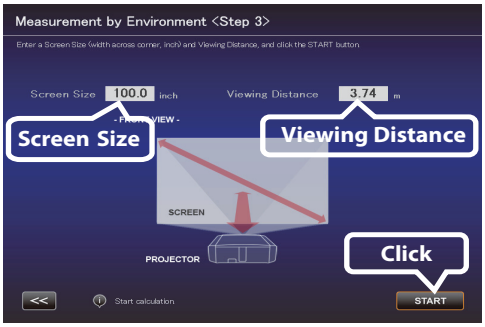


Position the optical sensor at approximately 30 cm from the edge of the projected image with it in contact with the screen, and make sure the ambient light sensor is facing the projector.

6 After installation is complete, click the “>>” button.



7 Enter a Screen Size (width across corner, inch) and Viewing Distance, and click the “START” button.



8 The recommended settings are displayed.

Picture Tone -W
Dark Level
Bright Level
Color
To view images in these settings, click the “AFTER” button. The recommended setting is applied to the projector.
To save these settings, press the button while the “BEFORE” button is displayed on the screen.



To restore to the original settings, click the “BEFORE” button. The settings of the projector will be restored to the original settings.



If the settings are inappropriate, take the measurements again.

To exit, click (to return to the top menu).

Exiting the Software

1 Return to the top menu, and click the “EXIT” button.



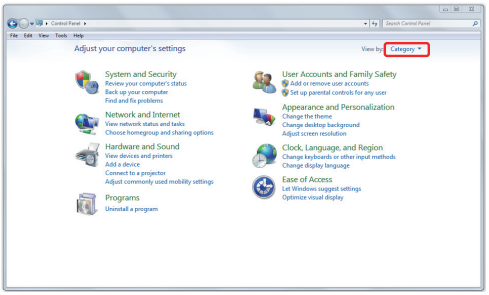
■ When the following messages are displayed

If you encounter with the following messages, follow the instructions being explained in the following:

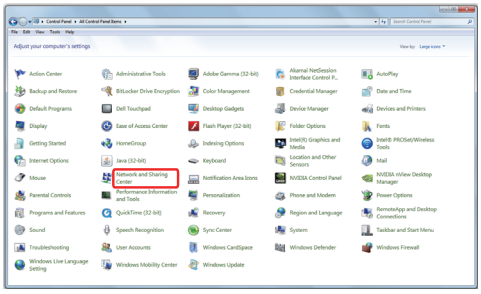
Message	Solution (Details)
Error in detecting the model.	Go back to the previous screen and check the input signal. After that, proceed to the error message screen. * This software can only be used on compatible models.
Could not set up the LAN connection. Please try again.	Proceed to the setting screen from the top menu and check the LAN connection by clicking the “CHECK” button. If “NG” is displayed, perform the LAN setting again.

Setting Up the Network (for Windows7)

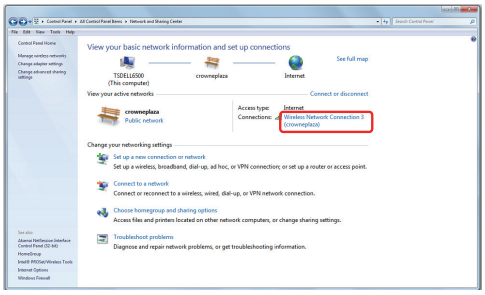
1 Click the “Start” button on the lower left corner of the desktop screen, and select “Control Panel”.
If the screen on the right is displayed, select “Small Icon (S)” from “View by:”. => Proceed to 2).



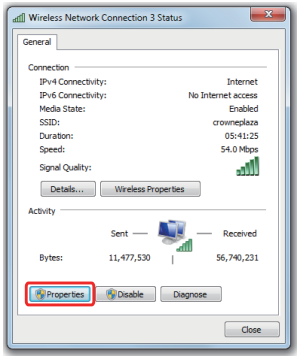
2 Select “Network and Sharing Center” when the screen on the right is displayed.



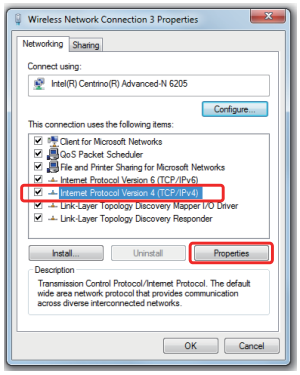
3 Select “Local Area Network”. (Or, select “Wireless Network Connection” if the connection is made by the wireless LAN.)



4 Select “Properties”.

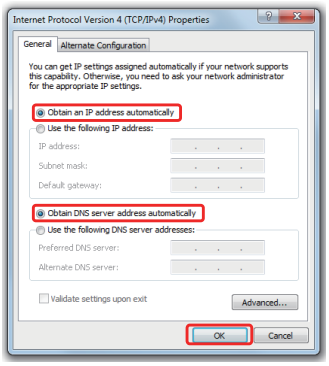


5 After choosing “Internet Protocol Version 4 (TCP/Ipv4)”, select “Properties”.



6 Proceed to 7) for LAN connection via router and complete the setup in 11).
Proceed to 12) if the projector and PC are directly connected by LAN cable and complete the setup in 15).

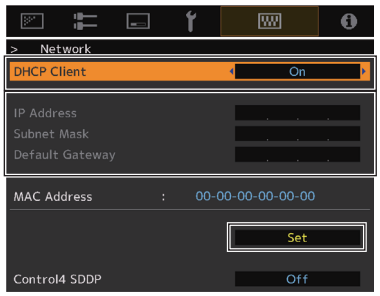
7 Check the boxes for “Obtain an IP address automatically” and “Obtain DNS server address automatically”.
=> Click “OK”, and then close all the windows by clicking the “x” button.



8 Turn on the power of the projector.

Select “MENU” => “Function” => “Network”, and proceed to 9).

9 Set “DHCP Client” to “On”
After choosing “Set”, select “Yes” in “Apply network setting?”

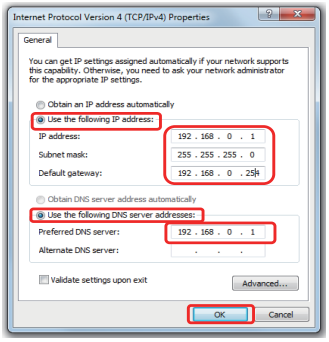


10 Write down the value in “IP Address” (192 168 0 2 in the example) after returning to the screen in 9).

11 Start the “JVC Projector Calibration Software” on your PC, and select “Setting” on the right side of the screen.
Enter the value from 10) in the “IP address” field on the screen on the right.
Click “CHECK”. If “OK” appears on the right of the button, complete the setting by clicking the “OK” button at the bottom right corner.



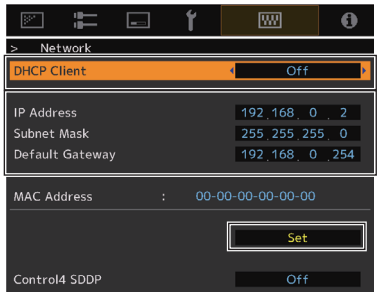
12 Check “Use the following IP address:”. Enter the values shown on the right in the “IP address”, “Subnet Mask” and “Default Gateway” fields. Check “Use the following DNS server addresses:” to enter the value shown on the right in the “Preferred DNS server:” field.
=> Click “OK”, and then close all the windows by clicking the “x” button.



13 Turn on the projector.

Select “MENU” => “Function” => “Network”, and proceed to 14).

14 Set “DHCP Client” to “Off”.
Enter the values shown on the right in the “IP Address”, “Subnet Mask” and “Default Gateway” fields.
After choosing “Set”, select “Yes” in “Apply network setting?”



15 Start the “JVC Projector Calibration Software” on your PC, and select “Setting” on the right side of the screen.
Enter the value in the “IP address” field on the screen on the right.
Click “CHECK”. If “OK” appears on the right of the button, complete the setting by clicking the “OK” button at the bottom right corner.



The specifications of this product is subject to change without prior notice.

JVC

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