LG
Life's Good

Owner's Manual

SuperSign White Balance

Please read the safety information carefully before using this product.

www.lgecommercial.com

ENGLISH

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SuperSign White Balance

SuperSign WB is a software solution that lets you control the white balance of Videowall Signage monitors (or standard Signage monitors) developed based on LG Electronics' proprietary technology. With SuperSign WB, you can adjust the white balance by configuring the RGB and Backlight settings of interlinked monitors in stages with the use of a separate calibration sensor.

Videowall Signage Monitor

LG Electronics' Videowall Signage monitor is equipped with an Ethernet network interface card, which allows you to control the monitor connected to a LAN or RS-232C serial ports.

For information on the Signage monitor models supported by SuperSign WB, see **[Information]** > **[Release Note]**.

NOTE

- More monitor models may be supported by SuperSign WB in the future. Please make sure to add the correct monitor model. If you add the wrong monitor model, it may cause the software to malfunction.

CAUTION

- If you run the program after you have selected **[M-125%]** or **[L-150%]** in **[Control Panel]** - **[Appearance and Personalization]** - **[Display]** in Windows 7, part of the image may not display properly.

System Requirements

Hardware

RAM : 4 GB or more

Disk : 400 MB or more

Software

.NET Framework 4.5

System

Windows Platform

For Windows 7, Professional or higher

For Windows 8, Professional or higher

* Certain GUI screens may not display properly on some versions of Windows.

Features

Easy-to-use auto monitor calibration

You can easily adjust the white balance of your desired monitor with just a few changes to the settings.

Precise adjustment capable in manual calibration

An intuitive UI lets you make precise, fine-tuned adjustments with ease like an expert.

Camera calibration

With the use of a camera that supports the SuperSign WB software, you can easily perform a calibration of multiple pre-installed Videowall monitors at once via a Wizard-type UI. (Up to 3x3)

Setting up SuperSign WB

Setting up SuperSign WB involves establishing connections between the LG Electronics' Videowall Signage monitors and their white balance adjustment program, SuperSign WB. SuperSign WB connection setup supports the following two methods:

- Local Area Network (LAN) connection
- RS-232C serial communication

LAN Connection

This method connects monitors to a network using a switch or a hub. Connect the network cable from the LAN to the Ethernet port on the Signage monitor.

⚠ CAUTION

- If one monitor is managed simultaneously by a multiple number of PCs or managed by two different versions of the software running simultaneously, it may not function correctly.

Setting the IP Address for Network Monitors

Once the network cable is connected, set up an IP address for your Signage monitor to complete the network connection. Follow the steps below to set up the IP address of a monitor:

1 Click the **SETTINGS** button on your remote control.

2 Select **Expert Control**.

3 Select **Network**.

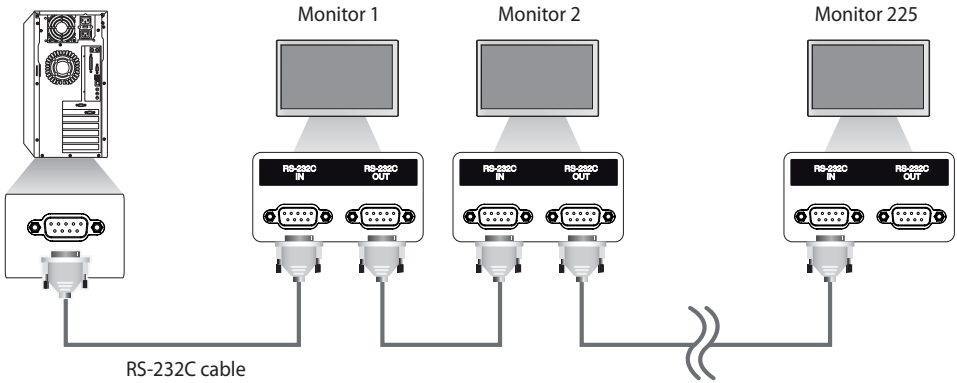
4 Select **Wired Connection (Ethernet)**.

NOTE

- A Local Area Network (LAN) is a network of PCs in a short-range area such as home, office, and school.
- The menu screens in this manual are for informational use only and may differ depending on the model.
- The UIs may function differently depending on the model. For more information, refer to the Owner's Manual of your product.

RS-232C Serial Communication

For RS-232C serial port communication, use a RS-232C cable to connect a monitor directly to the PC where the SuperSign WB software was installed. To connect more than one monitor to the PC, connect the first monitor to the PC with a RS-232C cable, and then connect the rest with a RS-232C cable as shown below.



⚠ CAUTION

- You can connect up to 1000 monitors by using RS-232C cables. However, considering the bandwidth of RS-232C cables, it is recommended that you connect no more than 225 monitors.
- The RS-232C cable may not be provided depending on the model.

Installing SuperSign WB

Install the SuperSign WB software on the PC which will be connected to the Signage monitors through a network or serial cable. You can control Signage monitors using SuperSign WB installed on the PC.

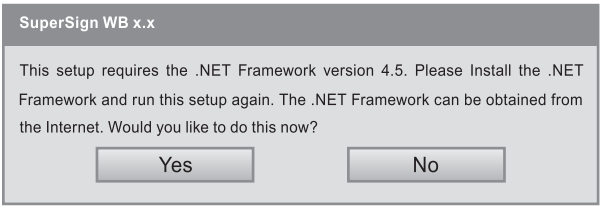
Installing SuperSign WB

1 Run the setup.exe file included in the SuperSign WB software you downloaded.

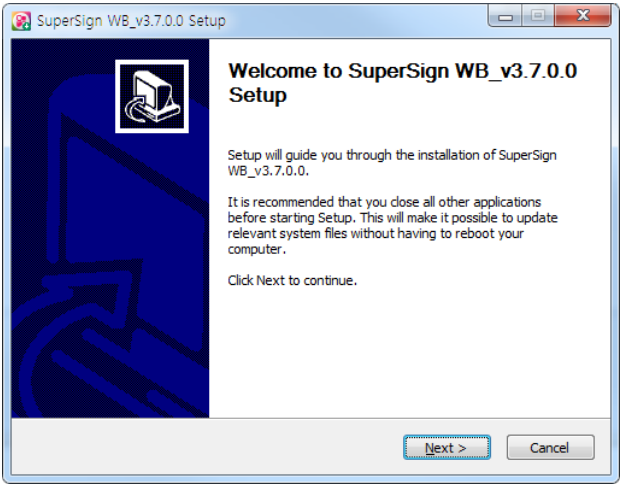
2 When the Setup Wizard window appears, click **Next**.

⚠ CAUTION

- When the pop-up below appears while running setup.exe, install .NET Framework 4.5 first by referring to the [Installing .NET Framework 4.5] section. Then, continue to install the SuperSign WB software.

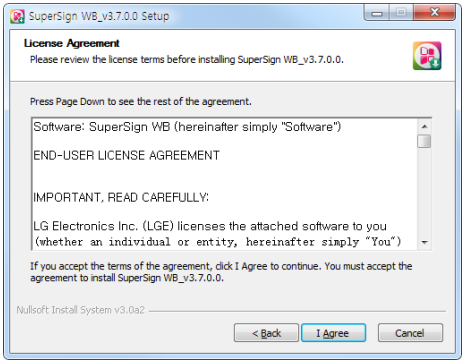


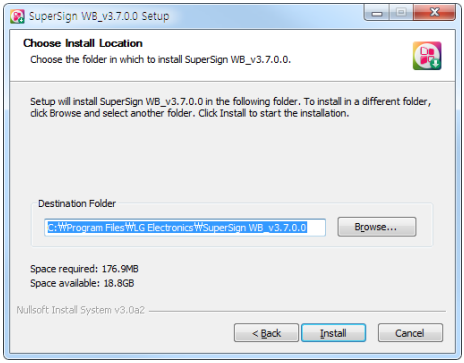
3 When the Setup Wizard window appears, click **Next**.



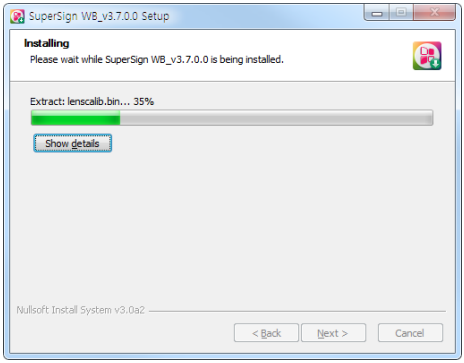
4 Accept the terms and conditions, and then click **I Agree**. Click the **Browse** button to change the default installation folder.

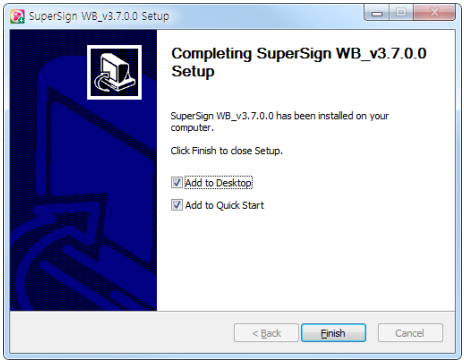
5 Click the **Install** button to start the program installation.





6 When the installation is complete, click the **Finish** button.





Deleting SuperSign WB

Select Start > Settings > Control Panel > Add/Remove Programs > SuperSign WB x.x to remove the software.

Installing .NET Framework 4.5

1 Download .NET Framework 4.5 from the following website and then run it.
https://www.microsoft.com/en-US/download/details.aspx?id=30653

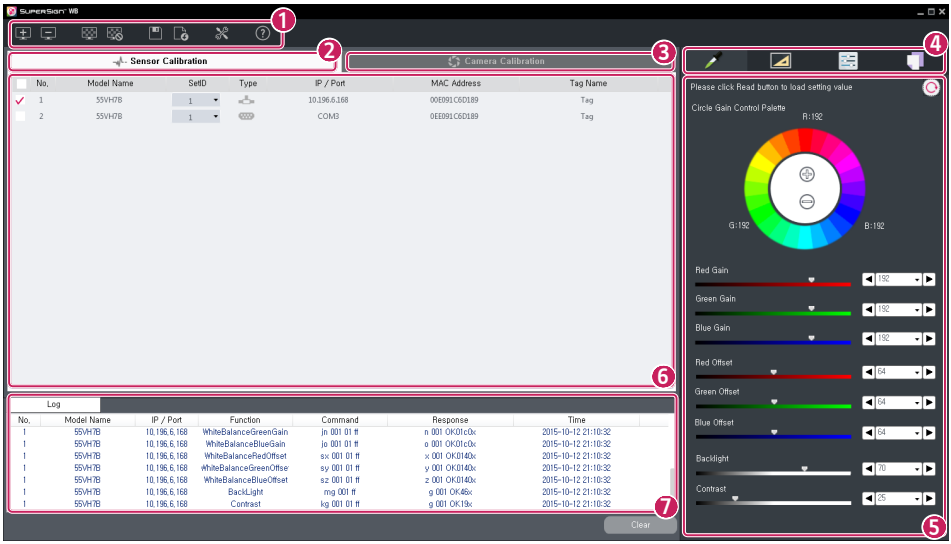
2 Restart your PC after the installation is complete.

NOTE

- Do this procedure only if your PC does not have .Net Framework installed.

Exploring SuperSign WB

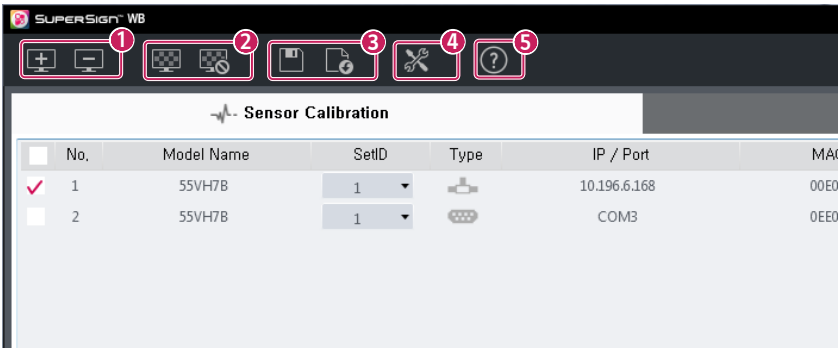
This is an overview of the key features of the SuperSign WB software.



No.	Item	Description
1	**Menu**	This provides basic menus used in SuperSign WB.
2	**Sensor Calibration tab**	This is a tab that provides menus that make it possible to perform calibration using a general tactile sensor. Selecting this tab changes Areas 4 and 6 to menus where you can use the general tactile sensor.
3	**Camera Calibration tab**	This is a tab that provides menus that make it possible to perform calibration using a camera. Selecting this tab changes Areas 4 and 6 to menus where you can use the camera calibration feature.
4	**Features tab**	The features provided in your selected calibration mode are available here in tab forms.
5	**Control Panel**	You can view and adjust the detailed settings of the feature you selected under the Features tab.
6	**Monitor Management Area**	You can view information about registered monitors and the configuration of their videowall and make adjustments.
7	**Log tab**	This shows the results of the commands you executed.

Menu

Menu provides the basic features of SuperSign WB and **Help**.

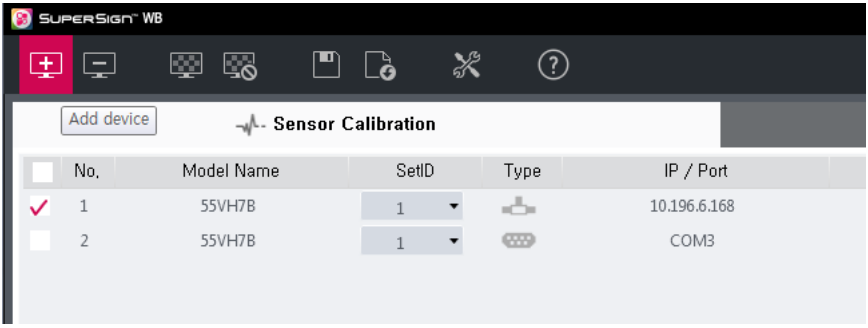


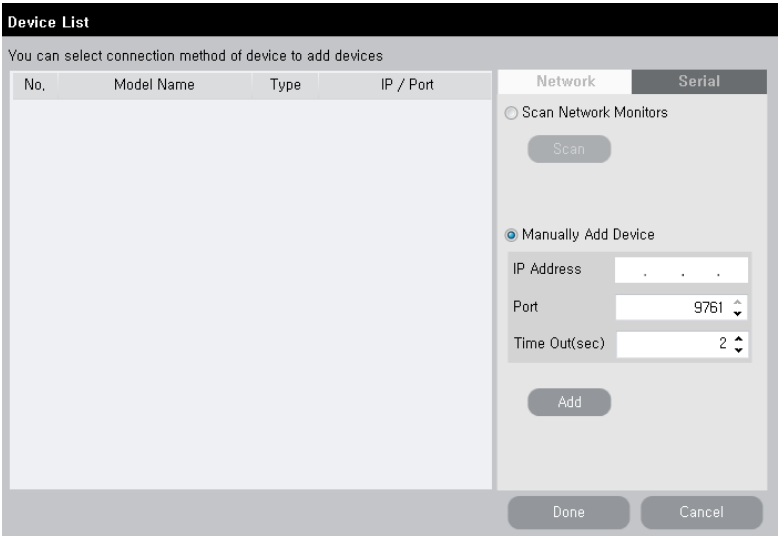
No.	Item	Description
1	**Add device/ Delete device**	You can add monitors to SuperSign WB for calibration or delete them.
2	**Test Pattern On/Test Pattern Off**	You can display/undisplay a certain pattern necessary for calibration on the screen of your selected monitor.
3	**Configuration Save/ Configuration Load**	You can save the current calibration configuration information as a file or load the configuration information of a pre-stored file.
4	**Option**	You can change the settings of SuperSign WB.
5	**Help**	You can view the version of SuperSign WB and its release note.

Videowall Signage Monitor Management

Adding a Videowall Signage Monitor

Click the button in the top menu, and then a window, where you can add a monitor, will appear.



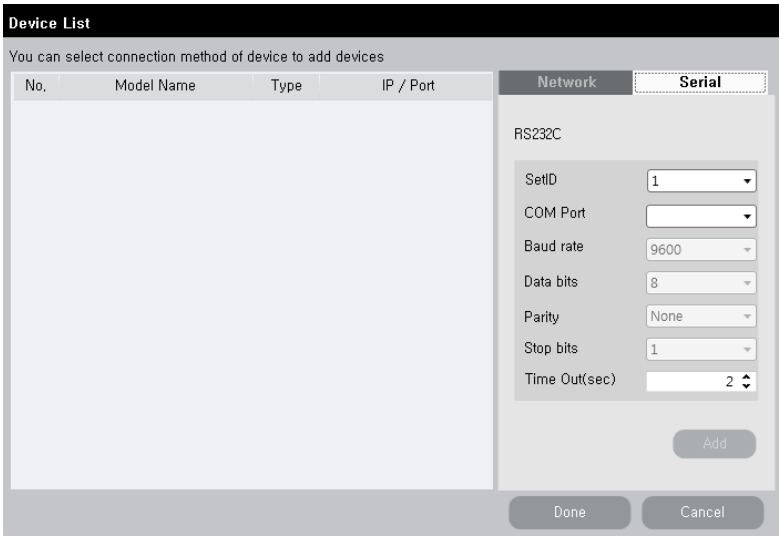


Adding a Signage Monitor Connected to a Network

1 You can add a monitor by scanning your network.

2 You can add a monitor by manually entering an address.

3 When the monitor you want to add appears in the list to the left, verify the information and then click the **Done** button.



Adding a Signage Monitor Connected via a Serial Cable

1 Click the **Add** button after entering the information, and then all monitors with matching information will be added.

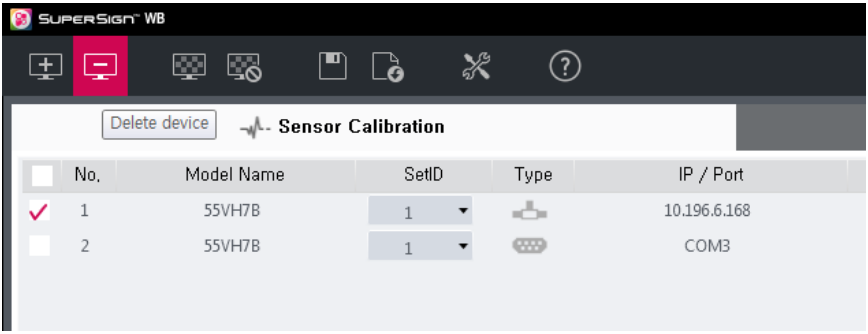
2 When the monitor you want to add appears in the list to the left, verify the information and then click the **Done** button.

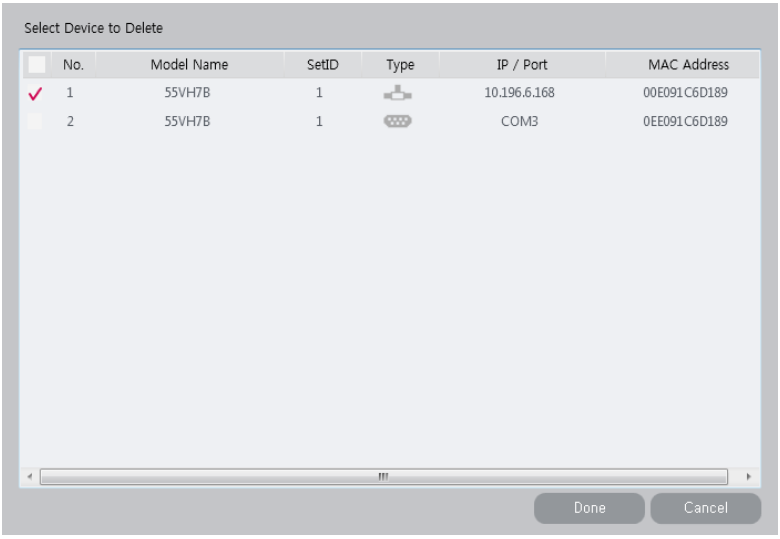
NOTE

- If the monitors are connected via a serial cable, you can add multiple monitors at once.

Deleting a Signage Monitor

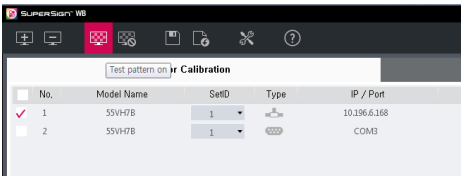
Click the button in the top menu, and then a window, where you can delete a monitor, will appear.

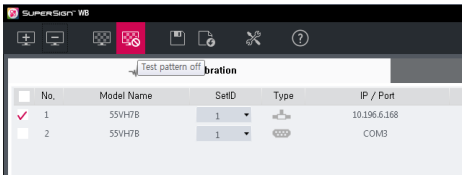




- Click the monitor you want to delete, and click the **Done** button. Then the monitor will be deleted.
- To delete all registered monitors at once, check the checkbox at the top of the screen and click the **Done** button.

Test Pattern On/Test Pattern Off



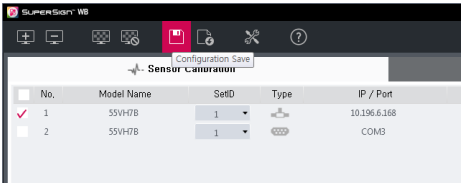


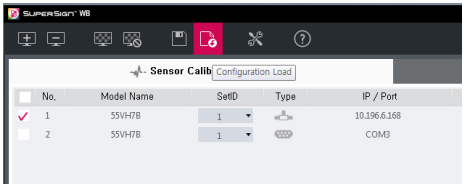
1 Clicking **Test Pattern On** displays a test pattern, which lets you know the white balance of your current monitor, on the screen of the monitor you selected from the monitor list.

2 Clicking **Test Pattern Off** switches the selected monitor's screen, on which a test pattern is displayed, back to its original status.

Saving a Setup File

You can manage the camera calibration configuration information of your SuperSign WB.



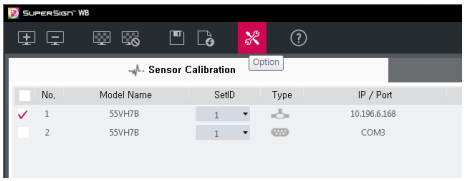


1 Monitor list information can be saved or loaded in the form of a file.

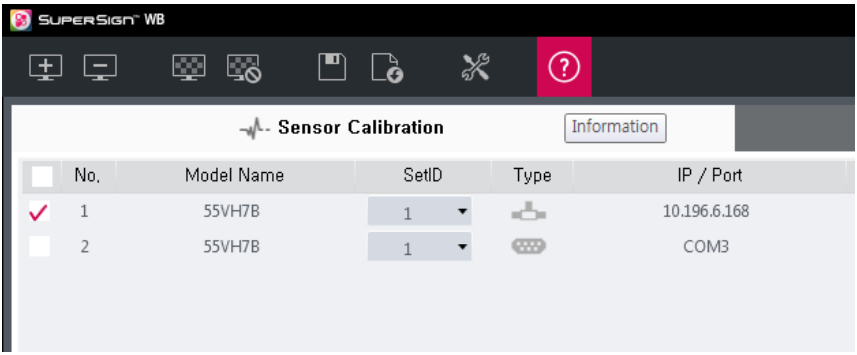
Option

Language

To change the language for the program, select **Option** > **Language**.

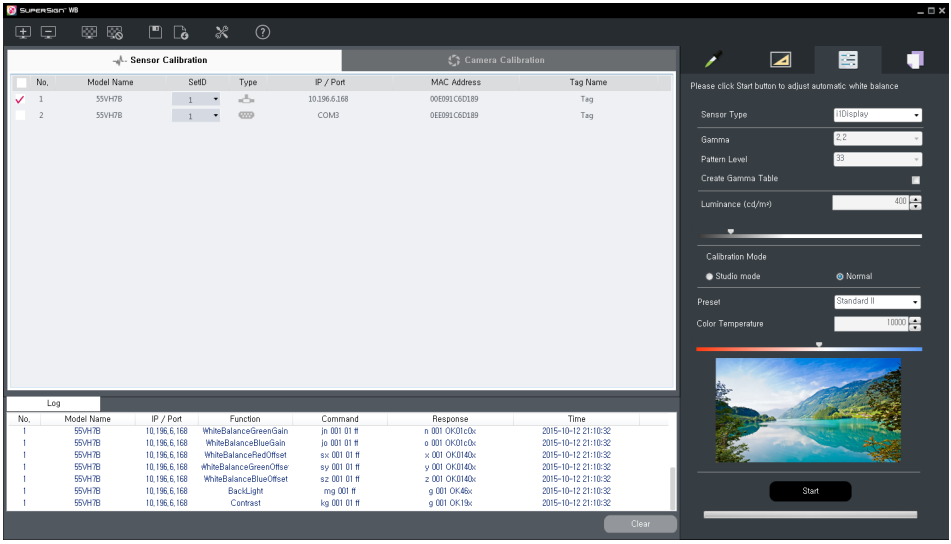


Information



You can view the version of SuperSign WB and its release note.

Sensor Calibration



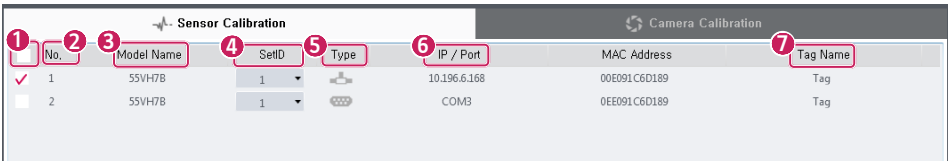
This screen enables calibration using a general tactile sensor supported by SuperSign WB.

The supported general tactile sensors are as follows:

- Spyder3, Spyder4, ACB8300(LG Sensor), i1Display, and CA210

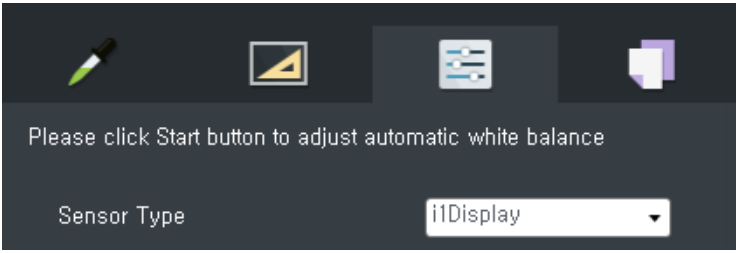
Selecting the Sensor Calibration tab opens, at the bottom of the tab, a window where you can view registered monitors in list form and, to the right of the tab, a Features tab where you can perform calibration using a sensor.

Monitor List



No.	Item	Description
1	**Checkbox**	You can select monitors. You can select multiple monitors.
2	**No.**	All the monitors in the list are displayed on the screen in the order they were connected.
3	**Model Name**	Shows the model name of a monitor to be connected.
4	**Set ID**	Shows the Set ID assigned to a monitor.
5	**Connection Type**	(Serial) or (Network) is shown according to the connection type.
6	**Server Connection**	This shows the connected monitor's COM port number (Serial) or the IP address (Network).
7	**Tag Name**	To manage the monitors more effectively, you can enter a different tag name for each monitor.

Features tab

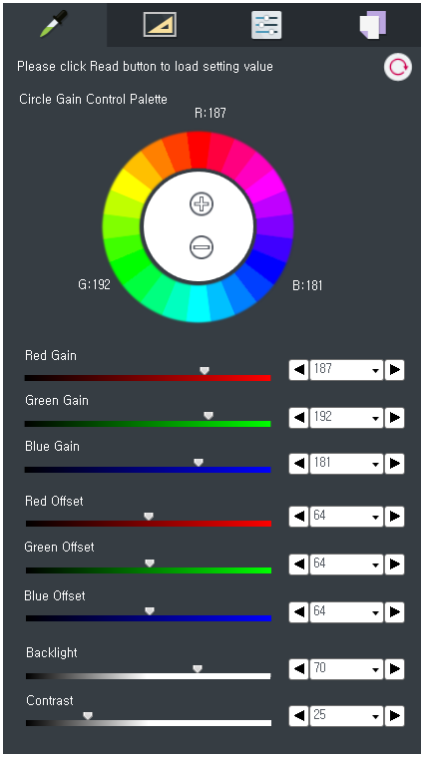


The Features tab of Sensor Calibration provides four features, **Color Value**, **Measure**, **Calibration**, and **Duplication**. To use these features, connect a supported tactile sensor to your PC and then attach it to the back of your monitor. Afterwards, select the monitor to which you want to apply color settings from the monitor list.

Color Value

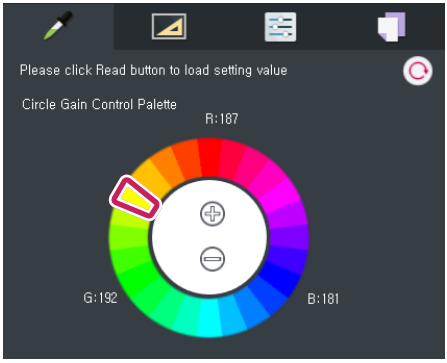
If you select a monitor from the monitor list and select the button, you can view the color information of the monitor.

Click the arrow button on the right-hand side of each piece of information to change the color settings. You can view and change the settings of **Red Gain**, **Red Offset**, **Green Gain**, **Green Offset**, **Blue Gain**, and **Blue Offset**. Available settings may differ depending on the model. **Contrast** adjusts the contrast values. It is the same as the contrast adjustment on the monitor OSD menu. **Backlight** adjusts the backlight values of the monitor. It is the same as the backlight of the monitor OSD menu pictures.

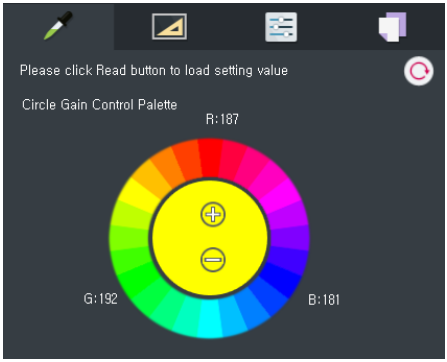


You can also change the color values by using **Gain (Circle Gain Control Palette)** at the top.

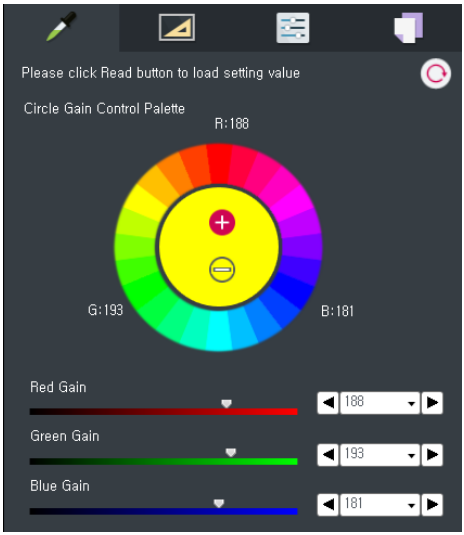
- Look at your monitor with a test pattern turned on, and select your desired color, the color you want to add to your monitor, from Circle Gain Control Palette.

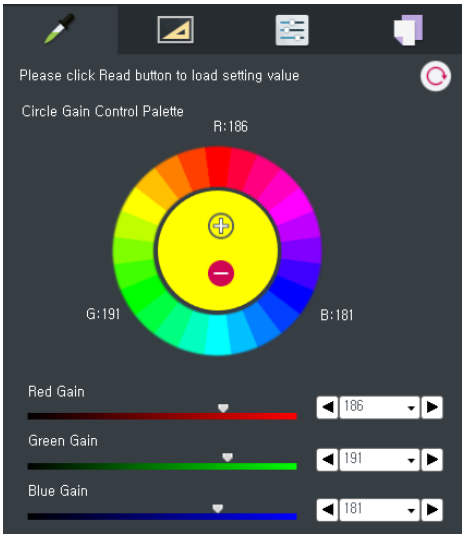


- The circle in the center of your monitor screen will be painted in the color you selected.



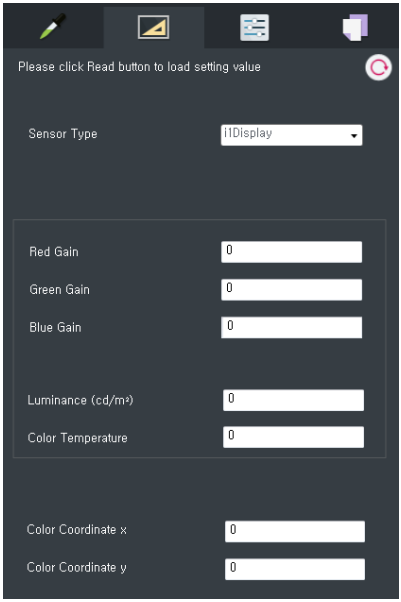
- The top of the circle in the center is a '+' button, and the bottom is a '-' button. Clicking the '+' button makes the color deeper, and clicking the '-' button makes the color lighter.
- If you select a color from among red, green, and blue, and press the '+' area of the circle in the center, the selected color's Gain value increases, making the selected color's tones stronger on the monitor screen. On the contrary, if you press '-', the selected color's Gain value decreases, making the selected color's tones weaker on the monitor screen.
- Changing the values of yellow, cyan, or magenta changes two Gain values at the same time. With yellow, red and green Gain values are changed. With cyan, green and blue Gain values are changed. With magenta, blue and red Gain values are changed.
- If you select a color other than those mentioned above, increase/decrease rates differ depending on the properties of the color.
- The values to change will be shown in sync with the slider bar at the bottom and the drop-down box.





Measure

This feature measures the white balance of the selected monitor using the sensor. Connect a supported sensor to your PC and select a **Sensor Type**. Select the monitor you want to measure in the monitor list and click the button under the white balance tab to view the values measured by the sensor on the screen.



Viewing Calibration Tab and Changing Settings

You can adjust the white balance of your monitor automatically using a tactile sensor.

Connect a supported sensor to your PC and select the monitor you want to calibrate from the monitor list.

Set **Sensor Type**, **Gamma**, **Pattern Level**, **Luminance**, **Color Temperature**, etc. and click the **Start** button.

In **Sensor Type**, you can choose the type of the sensor to use.

Gamma is the brightness calibration value and the value for Gamma calibration. SuperSign WB uses "2.2" as its default Gamma value.

If you check the **Create Gamma Table** checkbox, a new gamma table is created and you can save it as a file when you finish the setup process. Also, with **Duplication**, you can use a saved file and view it on another monitor. By default, it is set to save.

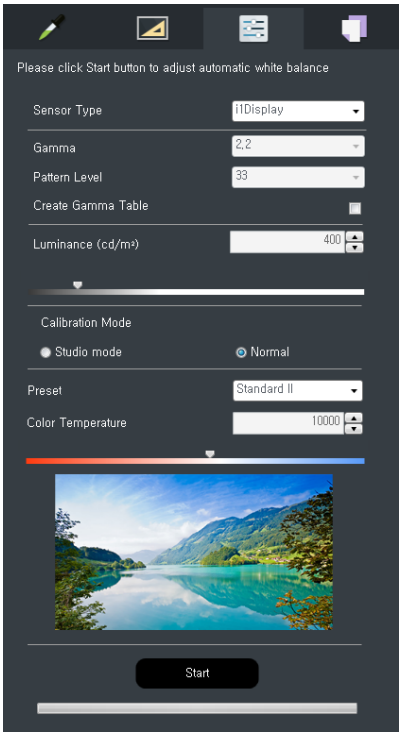
Pattern Level has to do with the number of samplings for each color (R/G/B/W) when **Create Gamma Table** has been checked. You can select a pattern level from among levels 9, 17, and 33.

Luminance represents the brightness of the monitor. The adjustable scope of luminance differs depending on the maximum luminance specification of the monitor.

Calibration Mode lets you select whether or not to use Studio mode. If you use Studio mode, you can only select a color temperature between 2800K and 4900K. If you use Standard mode, you can select a color temperature between 5000K and 16000K.

Preset is a frequently used preset **Color Temperature** value. If you select **Preset**, the preset value automatically becomes the **Color Temperature**. Please note that you can not set Preset in Studio mode. With **Color Temperature**, if the value becomes low, the image changes to red tones, and if the value becomes high, the image changes to blue tones. By default, it is set to 10000K, a Standard II value of **Preset**.

The Preview image (a virtual monitor screen) visually demonstrates the change of the image tones due to the change in the color temperature; you can see the change in the image tones according to the change of the color temperature.



⚠ CAUTION

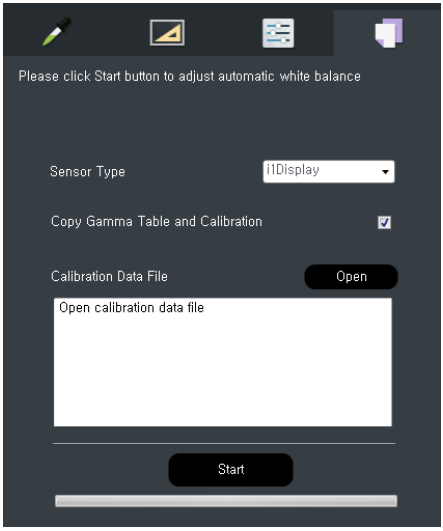
- The result of **Calibration** may differ depending on the performance and error range of the sensor used for **Calibration**.
- The colors of the preview image are for illustrative purposes so they may be different from the colors on your monitor screen.

Viewing Duplication Tab and Changing Settings

You can copy to a particular monitor the **Calibration Data File** that has been created from **Calibration**.

Click **Duplication** under the **White Balance** tab, select the monitor you want to change in **Device Management**, click **Open**, and then select the Calibration Data File you want to copy.

If you have checked the **Copy Gamma Table and Calibration** checkbox, the relevant sensors must be connected to your PC. The calibration will proceed automatically after the gamma table has been copied. The value set when the Calibration Data File has been created becomes the setting value.



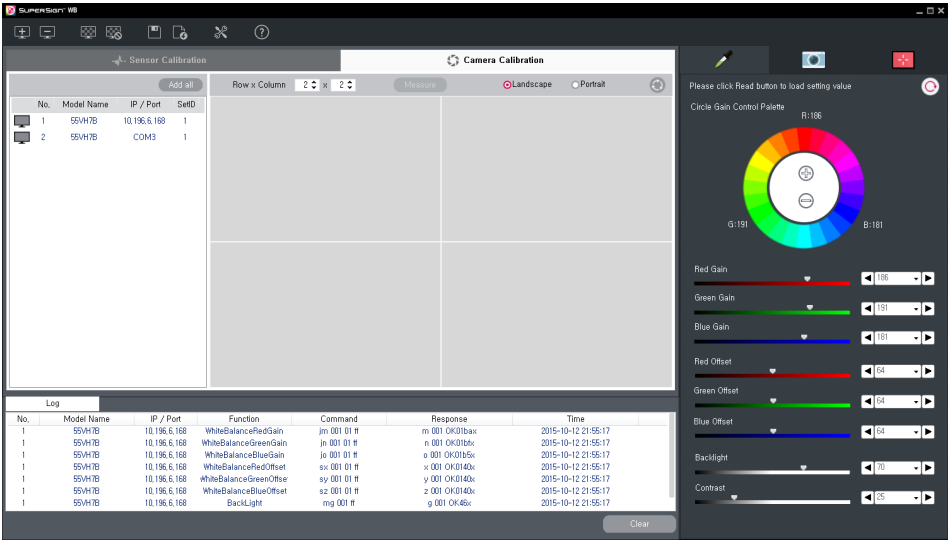
Camera Calibration

Camera Calibration provides a feature that lets you adjust the white balance of your videowall with ease and speed using a camera.

Getting Started

To calibrate using a camera, select the **Camera Calibration** from the screen.

The icon for the Features tab on the right side of the screen changes to an icon for the Camera Calibration feature.



Configuring a Videowall

1 Enter a size for the videowall you want to calibrate.
Enter an appropriate number for the videowall's rows and columns, respectively.
The maximum size for calibration of the videowall is 3x3.

2 Select the orientation of the videowall horizontally or vertically.

3 Select your desired devices from the device list on the left of the screen to compose a videowall.
You can compose a videowall by adding all of the selected devices at once using the **Add All** button.

* You can reset the configuration of your videowall using the Reset Videowall button.
* The Measure button is enabled once the camera calibration process is completed, and you can view the adjusted values.

Calibration Icons

Color Value

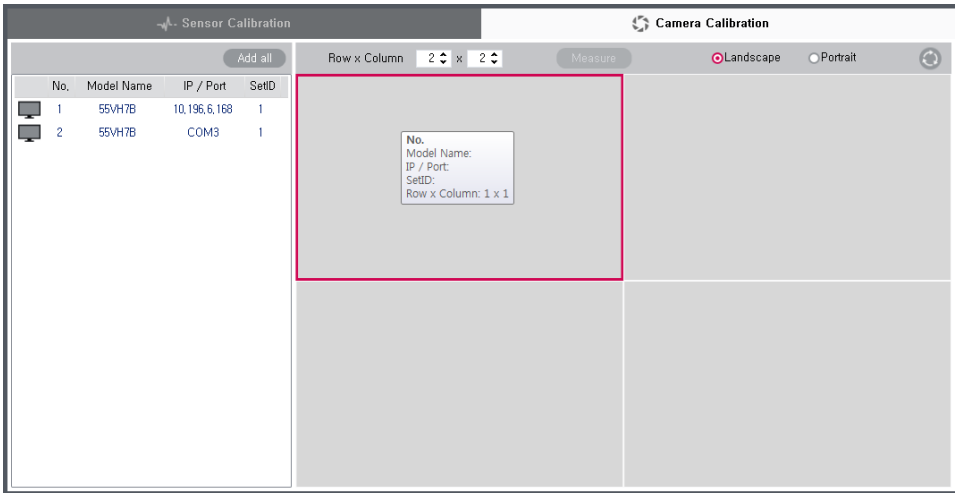
You can select each individual monitor and adjust their various settings.
This functions in the same manner as Sensor Calibration's Color Value, so refer to the previous chapter.

Camera Settings

In this step, your surrounding environment is evaluated and your camera's settings are automatically optimized for camera calibration.

Calibration Menu

You can perform calibration with your camera.



Camera Settings

Whether your environment is suitable for camera calibration is automatically evaluated, and your camera's settings are auto-configured accordingly.

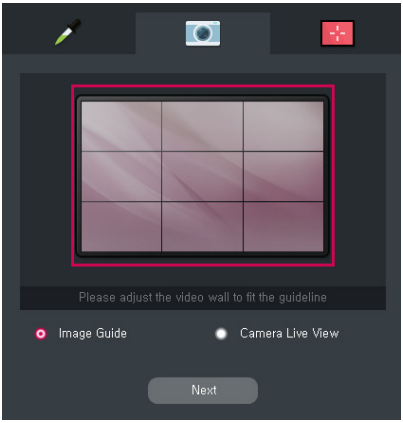
Camera Calibration is only available with the following camera model.

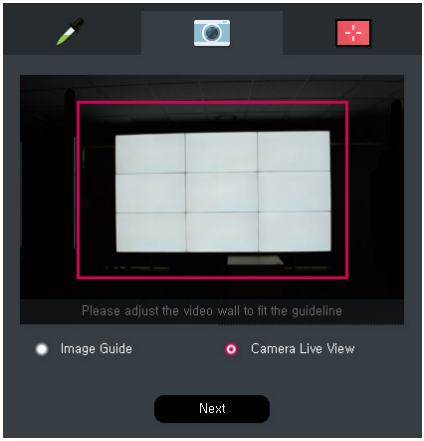
Supported camera: Nikon D5300

Supported lens: AF-S DX NIKKOR 18-55 mm f/3.5-5.6G VR II

Positioning the Camera

In this step, you position your camera so that the entire videowall can be captured on the screen of your camera.





1 As shown in the picture above, adjust the distance between the videowall and the camera as well as the position of the camera so that the videowall can be positioned inside the guidelines while filling up the camera screen.

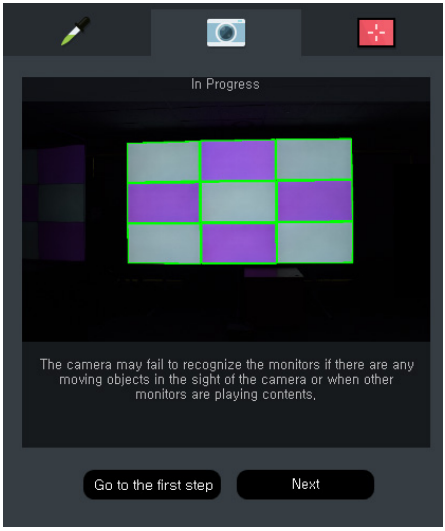
2 If you select **Camera Live View**, you can view the image from the camera in real time.

3 After aligning the videowall with the guidelines, select the **Next** button to proceed to the next step.

* Do not adjust the size using your camera's zoom function. Use your camera lens' 18 mm setting.

Auto Setup

In this step, whether your environment is suitable for camera calibration is automatically evaluated, and your camera's settings are auto-configured accordingly.



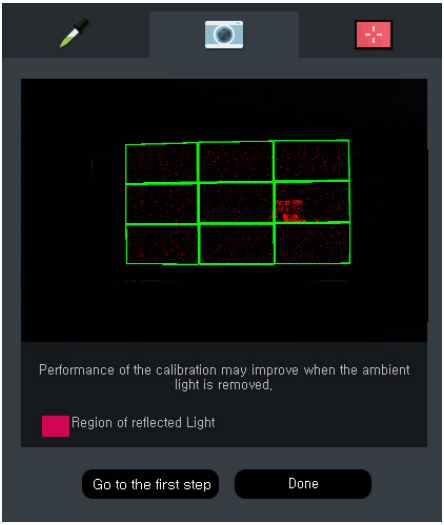
1 This shows images automatically shot by your camera during auto setup in real time.

2 After all settings are configured successfully, the **Next** button is enabled. Proceed to the next step by clicking this button.

3 If an error occurs during auto setup, the program discontinues the setup and notifies you of the error, and it also enables the **Go to the First Step** button so that you can start all over again.

Detecting Reflections

In this step, you check detected reflection areas.



1 After checking detected reflection areas, select the **Next** button to proceed to the next step or select the **Go to the First Step** button to start all over.

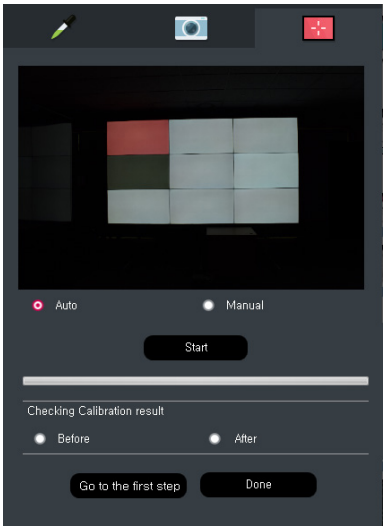
NOTE

- Detected reflection areas are not used for calibration.
- If too many reflection areas are detected, an error message is outputted.

Calibration Menu

You can perform calibration on your videowall.

The icon for Calibration Menu is enabled only after all camera settings have been configured successfully.



First, using the **auto/manual** option, select whether to let a **reference monitor** be selected automatically, or select it manually from the videowall configuration to the left.

1 Select a **reference monitor,** click **Start**, and then the calibration will start.

2 Once the calibration is complete, you can compare the before and after of the calibration using **Checking Calibration result**.

3 Click **Go to the First Step** to start all over. Click **Done** to end the calibration.

4 Click **Start** to calibrate again.

NOTE

- The monitor most suitable as a reference monitor is automatically detected and recommended when configuring a videowall.
- Clicking and selecting any one of the monitors in your videowall sets the selected monitor as a reference monitor. This does not change the reference monitor that was automatically selected.
- If you have selected **manual**, you can select a reference monitor manually.
- Once the calibration begins, the progress of the calibration is shown via a status progress bar.

Selecting a Monitor for Calibration

When calibrating your videowall, you can calibrate only part of it.

You can select the individual monitors you want to calibrate by clicking your mouse's left button in the Videowall Monitor Management window.

NOTE

- If you select **auto** in Calibration Menu, all monitors in your videowall are selected for calibration by default.
- If you select **manual**, you can click and select the desired monitors for calibration. The monitors you select are displayed in red.

Error Description

1 The camera is not operating as normal.
- Restart your camera and try again.
- Restart both your PC and camera, and try again.

2 Unsupported lens
- Camera calibration supports the AF-S DX NIKKOR 18-55 mm f/3.5-5.6G VR II lens only. Please check your lens model.

3 Switch your lens to AF mode.
- When your lens' switch is in the MF mode, calibration cannot be performed. Change your lens' switch to AF.

4 Cable connection failed.
- There is a problem with the RS-232C or LAN cable connected to your monitors. Check your cable connection.

5 Align your videowall with the guidelines.
- Adjust your camera's position and distance so that your videowall aligns with the guidelines.

6 Adjust the shooting angle.
- Adjust your camera's position and distance so that your camera points to the front/center of your videowall.

7 Monitor detection failed.
- Each individual monitor of your videowall could not be detected. If there are any objects that block your camera's view or your monitors, remove them. Bright objects and light fixtures emanating strong lights near your videowall may affect detection. So remove them.

8 Camera auto setup failed.
- Your camera's settings could not be configured automatically. If there are any objects that block your camera's view or your monitors, remove them. Bright objects and light fixtures emanating strong lights near your videowall may affect detection. So remove them.

9 Too many reflection areas detected.
- Remove the light fixture or light source whose light is being reflected off of the monitors.

10 Change your lens' focal length to 18 mm.
- Calibration works only when your lens' focal length is 18 mm.

11 Not enough battery.
- Your camera has insufficient battery power. Connect your camera to an AC power source or replace its battery.

Cautions

1 To get optimal calibration results, your camera and videowall must point to the front center of each other.

2 The maximum size for calibration of the videowall is 3x3.

3 Only videowalls configured in a square shape can be calibrated.
Irregularly installed videowalls are not supported.
(E.g. videowalls installed diagonally, videowalls installed in a zigzag, videowalls installed radially, videowalls oriented in a mixed manner, etc.)

4 Calibration may fail due to the surrounding environment, the position of your camera, and the color coordinates and luminance characteristics of each monitor.

5 Fix your camera with a tripod so that it does not move during calibration.

6 Install your camera in the horizontal direction. Positioning your camera vertically may cause monitor detection to fail, which will lead to improper calibration.

7 Camera Calibration does not support the color temperatures of the Studio mode. Use a different method for calibration.

8 Measured data from camera may differ from the real data.

9 If the reference monitor has extreme color values each other(ex> R gain : 255, G gain or B gain : 0 .. etc.), it may not be adjusted properly.

LG

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