

# SHARP®

## (V Series)

# Display Installation Tool with Calibration Utility

Version 1.1

## OPERATION MANUAL

Supported Model (February 2012)
LCD MONITOR PN-V600, PN-V601, PN-V602

Available models differ according to region.

# Contents

Introduction .....	2
IMPORTANT INFORMATION .....	2
Trademarks .....	2
How to read this manual.....	2
Operating environment.....	4
Connection.....	4
Installing the software .....	6
Uninstalling the software .....	6
Starting and exiting the software .....	7
Calibration .....	9
●[Calibration] tab .....	16
●[Measurement] tab .....	18
●[Write data] tab.....	19
●[Sensor setting] tab .....	21

# Introduction

## Introduction

This software is for the Service that the calibration function has been added to the "(V Series) Display Installation Tool".

\* This software cannot be installed in an environment where the "(V Series) Display Installation Tool" is already installed. It also cannot be installed in an environment where the "Multi Display Calibration Tool" (Calibration Tool for PN-V601-only) or the "SHARP Monitor Control Software" (old version of the monitor control software) are already installed, either. When installing this software, please uninstall the previous software.

- The calibration function allows the user to align the brightness and color of LCD monitors setup in a multiple monitor array.
- The operation function allows the user to adjust the brightness and color of an LCD monitor from a PC. You can also turn an LCD MONITOR ON and OFF, switch its inputs, and change its settings.

As for functions other than calibration (Operation, Video Wall, PIP/PbyP, Monitor Control, Password Settings), please see the "(V Series) Operation Manual for Display Installation Tool".

## IMPORTANT INFORMATION

- Transcribing or duplicating part or all of this manual and/or this software without permission from our company is not permitted.
- As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.
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## Trademarks

- Microsoft, Windows, and Windows Vista are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Names of products and other proper nouns are the registered trademarks or trademarks of their respective copyright holders.

## How to read this manual

- Keyboard keys are indicated with square brackets.

e.g. [Shift] key, [Ctrl] key

- Menus, windows, dialog boxes, buttons, tabs, etc . are indicated with square brackets .

e.g. 1 . Click [Monitor Control] .

- Options, check boxes, radio buttons, etc . are indicated with quotation marks .

e.g. "Remove" radio button

- **The description in this manual assumes that this software has been installed in the default folder shown below .**

If you changed the folder, use that folder instead of the default folder.

C:\Program Files\SHARP(V Series) Display Installation Tool

- **The screens and operation procedures are typical examples .**

The contents or details may vary depending on the model of your LCD MONITOR, screen configuration, and OS version, etc. Examples in this manual are based in Windows®7.

- **This manual does not contain basic operating instructions for Windows® .**

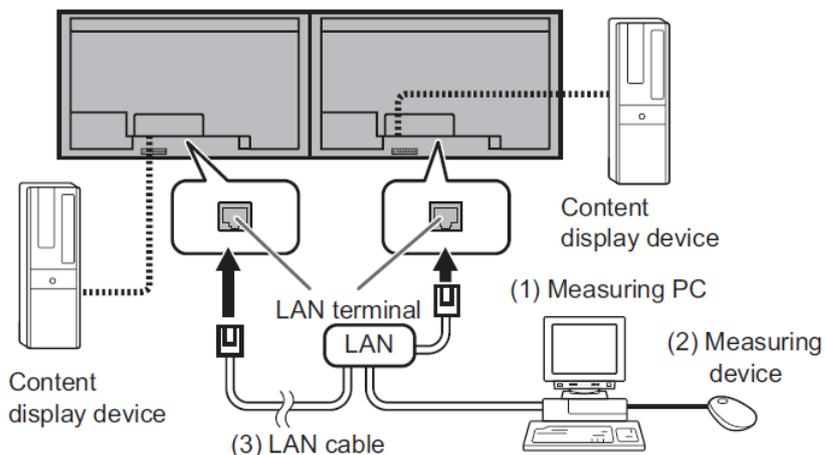
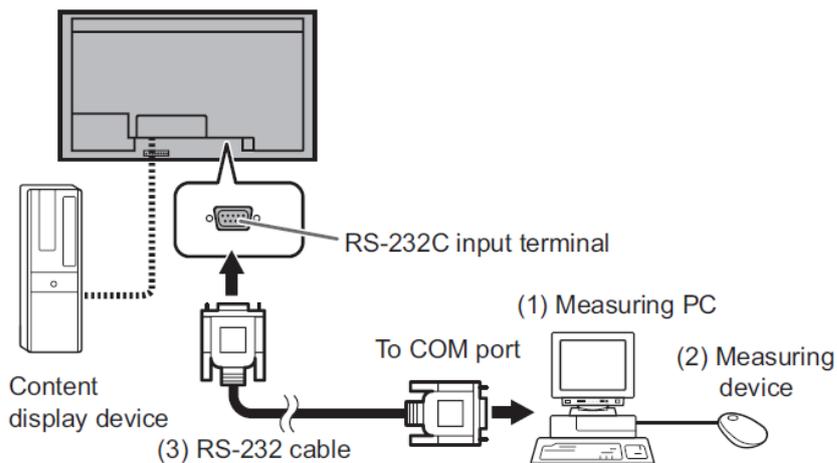
# Preparation

## Operating environment

Item		Description
Personal computer (PC)	OS	Microsoft Windows® XP SP3 or later / Vista SP1 or later / 7 (English version)
	Hard disk	100 MB or more free space (Additional space required for saving data.)
	Interface	LAN port (TCP/IP communication must be functional.) or RS-232C serial port
Display		Full-color display with resolution of 1024 x 768 or better
Measuring device		Datacolor Spyder3Pro, X-rite ColorMunki Photo/Design

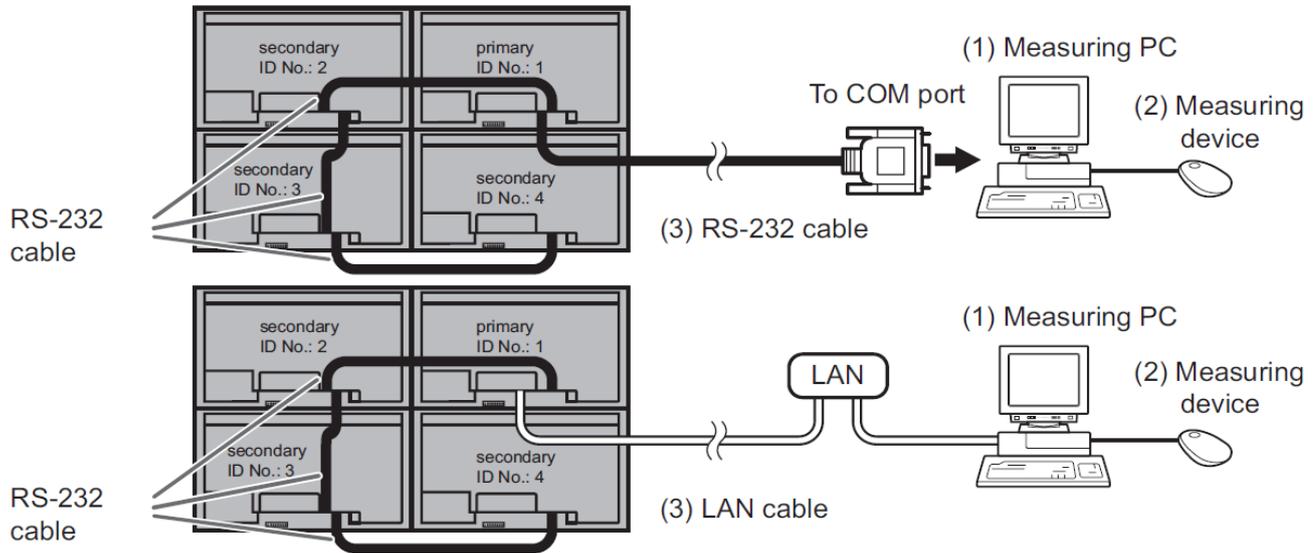
## Connection

- (1) Prepare a measuring PC to which this software will be installed.
- (2) Using the manual for the measuring device as a reference, connect the measuring device to the measuring PC.
- (3) Connect a measuring PC to the LCD MONITOR with the RS-232 cable.  
Or, connect a measuring PC to the LCD MONITOR through a network with a LAN cable.  
Using a LAN connection, you can adjust multiple LCD MONITORS (Up to 100 units).



When connecting LCD MONITORS in a daisy chain with RS-232 cables, connect the measuring PC to the primary LCD MONITOR.

The secondary LCD MONITORS can also be adjusted.



[TIPS]

- It is not necessary to input the video signal of the measuring PC to the LCD MONITOR.  
(A separate display monitor is necessary when using a desktop PC.)
- It is necessary to attach the measuring device to the screens of each LCD MONITOR. Please position the PC and the measuring device within the cable range of the screen.
- For connection details, refer to the manual of your LCD MONITOR.
- When connecting monitors in a daisy chain with the RS-232 cable or when connecting with LAN, set "STANDBY MODE" on the LCD MONITOR to "STANDARD".
- Set "OPERATION MODE" on the LCD MONITOR to "MODE2".  
(North American models do not have this function.)

## Installing the software

- Install this software and the drivers for the measuring device. Do not connect the measuring device yet.

- Administrator authority is required to conduct the following operation.

### 1. Start your PC.

### 2. Close down all applications.

### 3. Start the setup program (IDPInstToolsetup\_VwithC.exe).

- Double-click IDPInstToolsetup\_VwithC.exe and the setup program will start.
- When a security warning saying 'The publisher could not be verified.' is displayed during installation, click [Run].

### 4. Follow the instructions displayed on the screen to complete the operation.

When the installation is completed, a shortcut icon of "(V Series) Display Installation Tool with Calibration Utility" will be created on the desktop.

### 5. Once the entire installation is completed, connect the measuring device to the USB terminal of the measuring PC.

Install the drivers for the measuring device.

Specify the location of the drivers in the folder below and install.

For Data Color Spyder3 Pro

C: \Program Files\SHARP\Display Installation Tool for \DatacolorSpyder3

For X-rite ColorMunki

C: \Program Files\SHARP\Display Installation Tool for \XritecolorMunki

(If using a 64-bit operating system, the location of the drivers is "Program Files (x86)," not "Program

## Uninstalling the software

### 1. Start your PC.

### 2. Close down all applications.

### 3. Start the setup program (IDPInstToolsetup\_VwithC.exe).

- Double-click IDPInstToolsetup\_VwithC.exe and the setup program will start.
- When a security warning saying 'The publisher could not be verified.' is displayed during installation, click [Run].

### 4. Select the "Remove" radio button and click [Next >].

### 5. Click [Yes].

The uninstallation will start.

### 6. For the remainder of the procedure, follow the instructions shown on the screen.

### 7. Click [Finish].

The uninstallation has finished.

## Starting and exiting the software

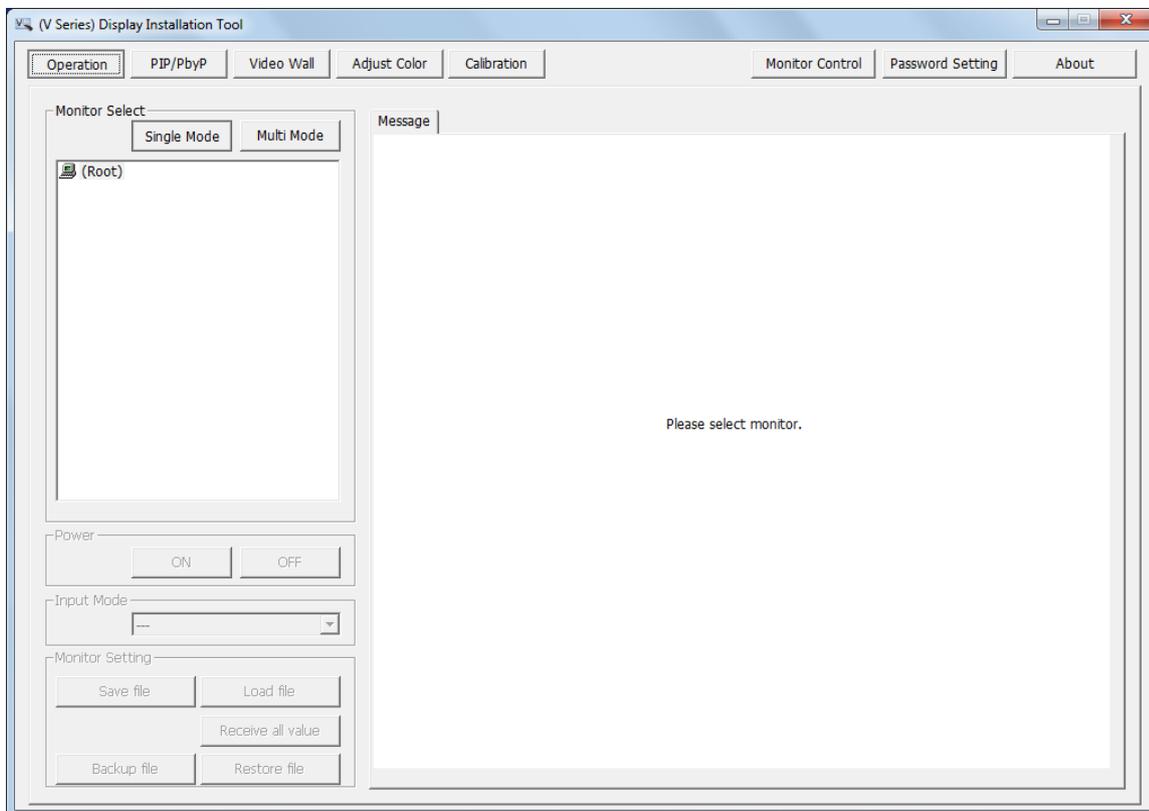
The following will explain the procedures for starting and exiting “(V Series) Display Installation Tool with Calibration Utility”.

- Starting the software

1. Double-click the shortcut icon on the desktop.



There are the following function buttons and setting buttons configured on the (V Series) Display Installation Tool with Calibration Utility.



### 1) Function buttons

Operation	Used to set all of the configurations of the LCD MONITOR.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.
PIP/PbyP	Used to set the configuration of PIP/PbyP.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.
Video Wall	Used to adjust settings for multiple-monitor configuration and the enlarge function.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.
Adjust Color	Used to display the built-in pattern on the monitor in order to check and adjust the color and brightness of the monitor.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.
Calibration	Used to perform calibration and measurement; read and write saved calibration data; change and write user gamma curve GUI; and display adjustment and measurement conditions.	Refer to the “Calibration” section in this document.

### 2) Setting buttons

Monitor Control	Used to register/edit the individual LCD MONITOR.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.
Password Setting	Used to set the password and operating authority.	Refer to the “(V Series) Display Installation Tool” OPERATION MANUAL.

### 3) About

Shows the version information and model name that the Display Installation Tool supports.

#### [TIPS]

- You can also start the software by clicking the [Start] button in the Windows taskbar and then selecting [All Programs] - [Display Installation Tool] - [(V Series) Display Installation Tool with Calibration Utility]

#### ● Exiting the software

1. Click the  of the (V Series) Display Installation Tool.

# Adjusting

For the calibration, the following operations are required first.

- Register the LCD MONITORS you will adjust from "Monitor Control".
- Assemble the LCD MONITORS you will adjust, and set up a multiple-monitor configuration from "Video Wall".

For the operations above, please refer to the "(V Series) Display Installation Tool " OPERATION MANUAL.

## Calibration

- When the LCD MONITOR is used in a multiple-monitor configuration, there may be variations in the brightness and color of each LCD MONITOR depending on the environment. When the calibration function is used, you can align the brightness and color of the monitors.
- When the LCD MONITOR is used over a long period of time, brightness will be lost and the color will change. When the calibration function is used, you can adjust the brightness and color.

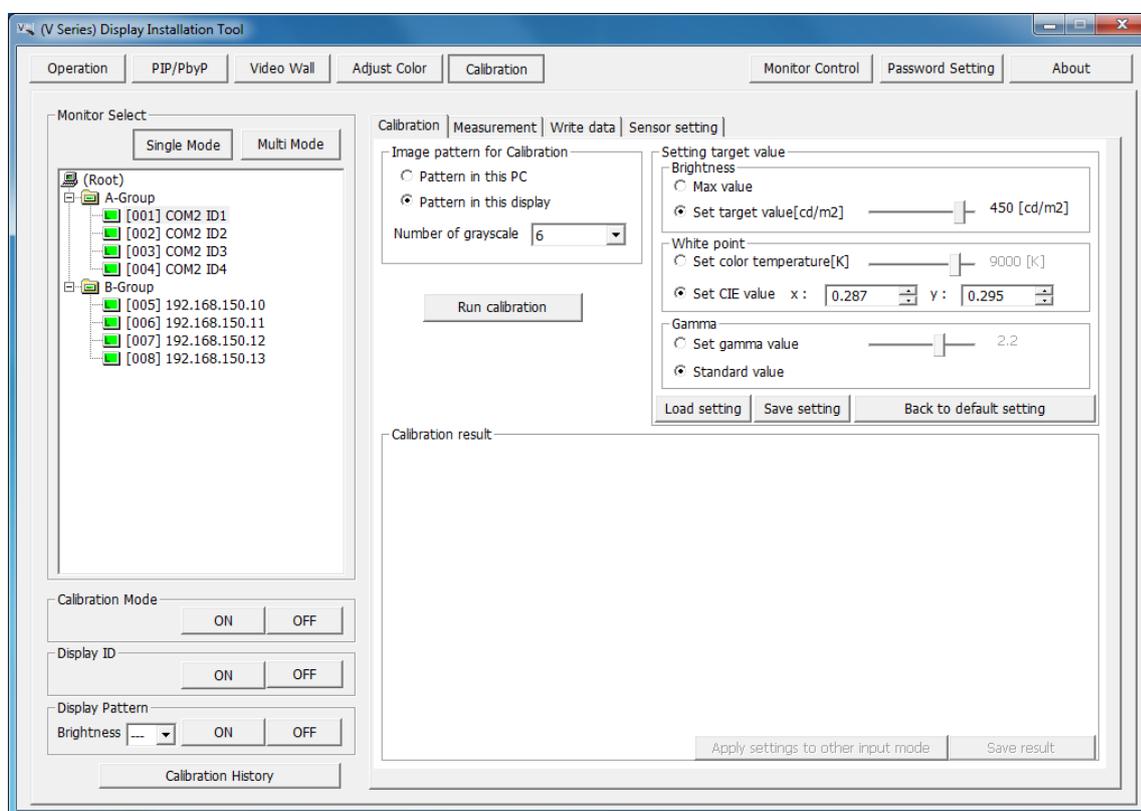
### [Caution]

- Calibration cannot be performed when dual-screen display (PIP/PbyP settings) is selected with the LCD MONITOR.
- If the LCD MONITOR is set to "POWER ON DELAY", disable "POWER ON DELAY". (Set to "0".)
- Set the [BRIGHTNESS SENSOR] of the LCD MONITOR to [OFF].
- Set the [LOCAL DIMMING] of the LCD MONITOR to [OFF]. (when using PN-V602)
- When using "Pattern in this display" for "Image pattern for Calibration" on PN-V601, do not input a video signal to the PC D-sub input terminal.
- [Image pattern for Calibration] should normally be set to [Pattern in this display].  
When using [Pattern in this PC], check that this software screen is displayed correctly in the PC and LCD MONITOR. In the following cases, or when the screen is not displayed correctly, use [Pattern in this display].
  - When using the LCD MONITOR in vertical orientation.
  - When the PC screen is displayed in multiple displays, and the LCD MONITOR is not set as the primary display.
  - When the PC screen is split between multiple displays.
- Clean the screen of the LCD MONITOR before measurement.  
If there is dust or dirt attached to the screen, proper measurement or calibration cannot be performed.
- Do not touch the receiver of the measuring device.
- Secure the measuring device so that it will not dislodge from the screen during calibration or measurement.

For handling of the measuring device, refer to the manual of the measuring device.

When using ColorMunki, support with your hand when attaching to the monitor. If the folder with weight provided with ColorMunki is used for attachment to the monitor, the LCD panel surface of the monitor will be subjected to pressure and may be damaged.

- Calibration adjustment results are saved in "USER" in "GAMMA" on the LCD MONITOR.  
To use calibration adjustment results, set "GAMMA" in each input mode on the LCD MONITOR to "USER".
- Set the [COLOR MODE] of the LCD MONITOR to [STD].  
If this is set to [sRGB][VIVID][HIGH ILLUMINANCE], the user gamma settings cannot be used, and you will not be able to perform the proper measurement or the calibration.
- After the calibration, changing the settings on the LCD MONITOR such as the PICTURE menu will change the LCD MONITOR from its calibrated status.



1. Click [Calibration].
2. Click the [Sensor setting] tab.
3. Click [Execute] in "Format Sensor".
4. Click the [Calibration] tab.
5. Click the [Multi Mode], and then select all target LCD MONITORS in "Monitor Select" list.
6. Click [ON] in "Calibration Mode".

Later, operate the LCD MONITOR after the brightness has been stabilized.

Estimated time until the brightness stabilizes is 60 minutes.

### **7. Select the monitor that will serve as a reference.**

Decide the monitor to which the brightness and color will be aligned.

- 1) Click [ON] in "Display Pattern".
- 2) Set "BRIGHT" of all the LCD MONITORS to the maximum value.

In order to make it easy to understand differences in brightness, it is recommended to set "BRIGHT" to the maximum value.

- 3) Visually check the monitors, and decide the monitor to which they will be aligned.

Normally, select the darkest monitor.

A dark-screened monitor cannot be aligned with a bright-screened monitor.

If it is difficult to judge which is best, decide on a number of candidates, then make a selection after seeing the measured results using the following procedures.

- 4) Click [OFF] in "Display Pattern".

### **8. Measure the monitor that will serve as a reference, and decide the target value.**

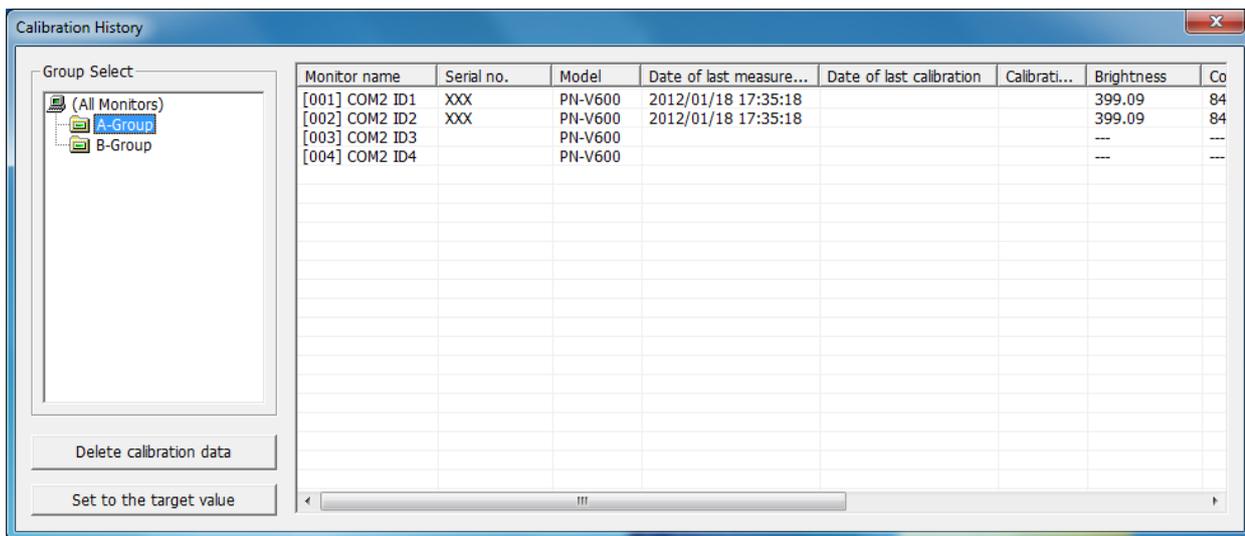
- 1) Click the [Measurement] tab.
- 2) Click the [Single Mode], and then select the monitor that was selected in the previous step from "Monitor Select" list.
- 3) Select [Image pattern for Calibration].  
Normally, use "Pattern in this display".
- 4) Click [Run Measurement].
- 5) When the screen below is displayed on the monitor, attach the measuring device to the mark in the center, and then click [Start].



When measurement is completed, the results will be displayed in "Measurement result".

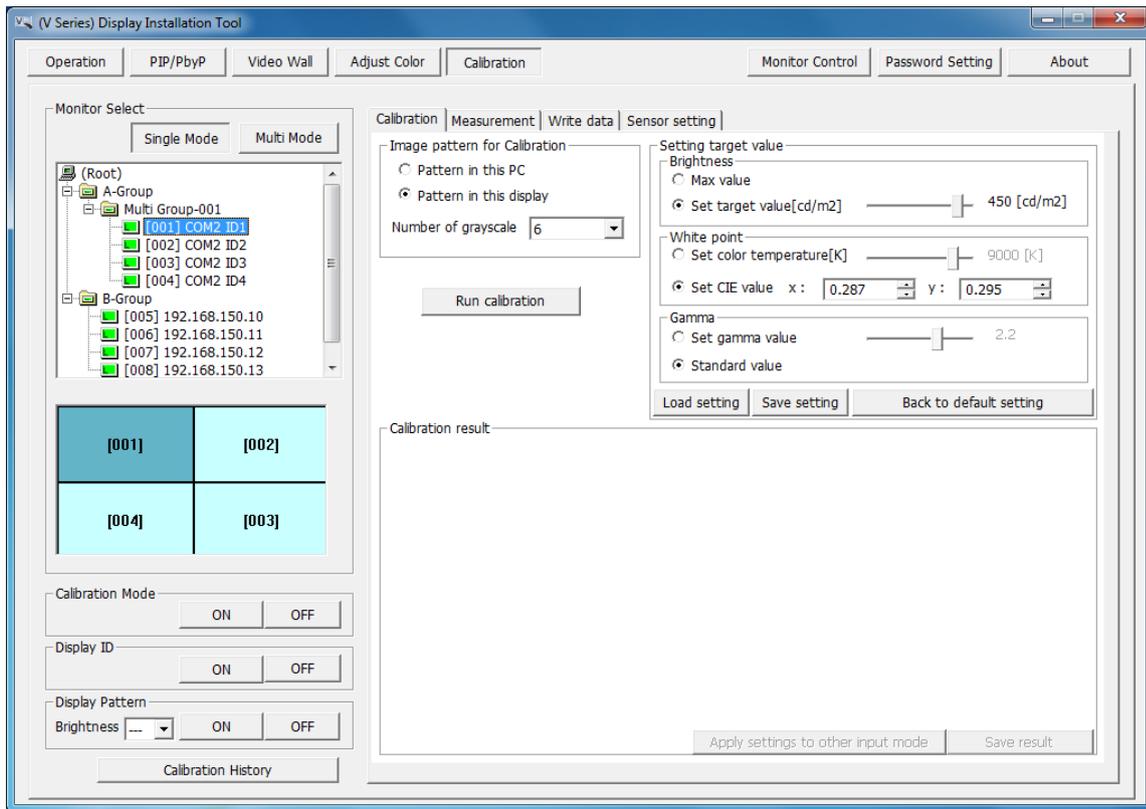
If there are other monitors that you would like to measure, repeat operations (2)-(5).

- 6) Click [Calibration History].
- 7) The measurement results for the monitor will be listed. Select the monitor that will serve as a reference from the list and click [Set to the target value].  
Normally, select the darkest monitor as your reference.  
A dark-screened monitor cannot be aligned with a bright-screened monitor.
- 8) Press  in the upper-right, and close the screen.



- 9) Save the target values for monitor calibration.
  - 1) Click the [Calibration] tab, and then select the monitor for which calibration will be performed from the "Monitor Select" list.
  - 2) Click [Save setting].  
You can save target value settings. Saved settings can be loaded by clicking [Load setting].
- 10) Run calibration.
  - \* Calibration can be run for a single monitor, or for multiple monitors in success

## «Running calibration in Single Mode»



- 1) Select [Image pattern for Calibration]  
Normally, use "Pattern in this display".
- 2) Click [Run calibration].
- 3) When the screen below is displayed on the monitor, attach the measuring device to the mark in the center, and then click [Start].



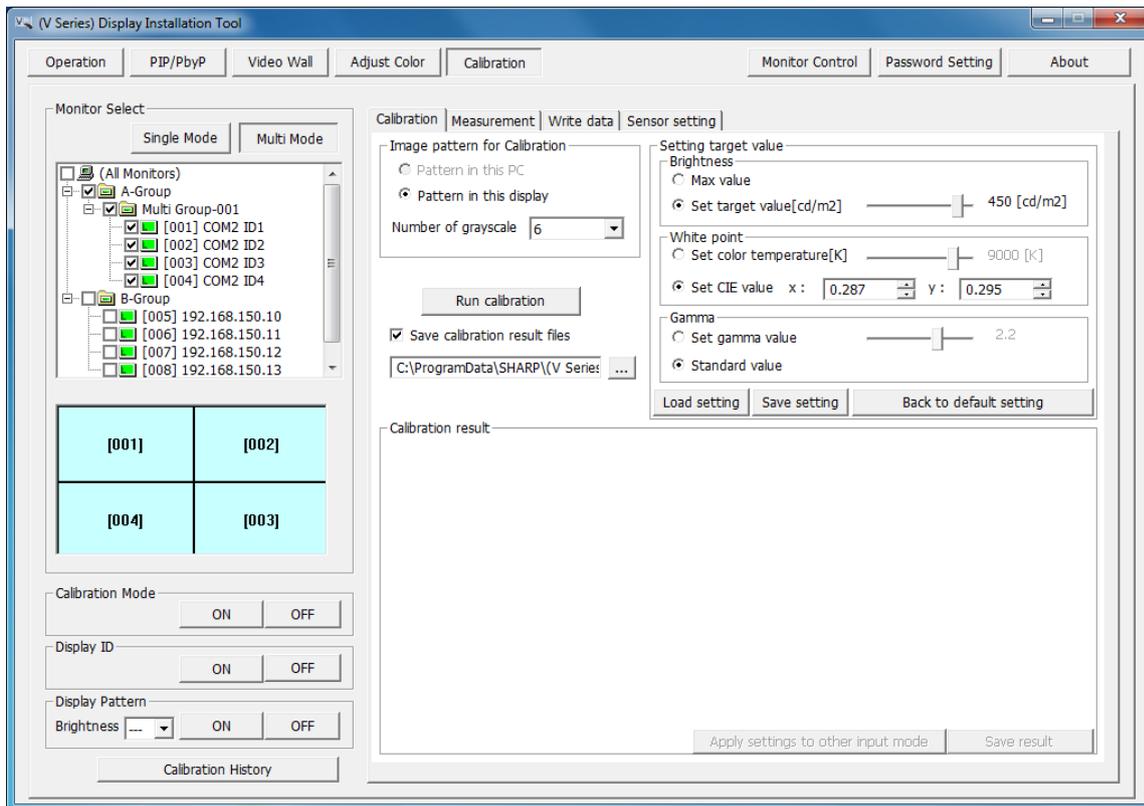
Calibration is executed. When calibration is completed, the results will be displayed in "Calibration result".

4) Click [Save result].

You can save the calibration result.

Perform operations (1)-(4) for all monitors.

### «Running calibration in Multi Mode»



1) Click [Multi Mode].

2) Select all monitors to be calibrated.

3) Specify the folder where the calibration result files will be saved.

- The folder can be specified by clicking .
- If you do not change the folder, the files will be saved in the "YYYYMMDDhhmm" folder of the CalibrationUserData folder in the Application Data folder.
- The file name will be "(model name)\_(serial number)\_C.ini".
- If you do not need to save the files, remove the "Save calibration result files" checkmark.

4) Click [Run calibration].

5) When the red cross-mark and cyan pattern appear alternately on the monitor, attach the measuring device to the central mark.

- Briefly after the measuring device is attached, the display color changes and calibration starts.
- If calibration does not start a brief interval after the measuring device is attached, click [Start].
- When calibration finishes, the results are shown in “Calibration result”.
- To check the detailed calibration results, click [Calibration History].

#### 11) End calibration.

- 1) Click [Multi Mode] and select all monitors in “Monitor Select” that were selected in step 5.
- 2) Click [OFF] under “Calibration Mode”

#### [TIPS]

- When [ON] in “Display ID” is clicked, the number of the monitor name (three digits) will be displayed on the LCD MONITOR.

Use this to confirm the target LCD MONITOR.

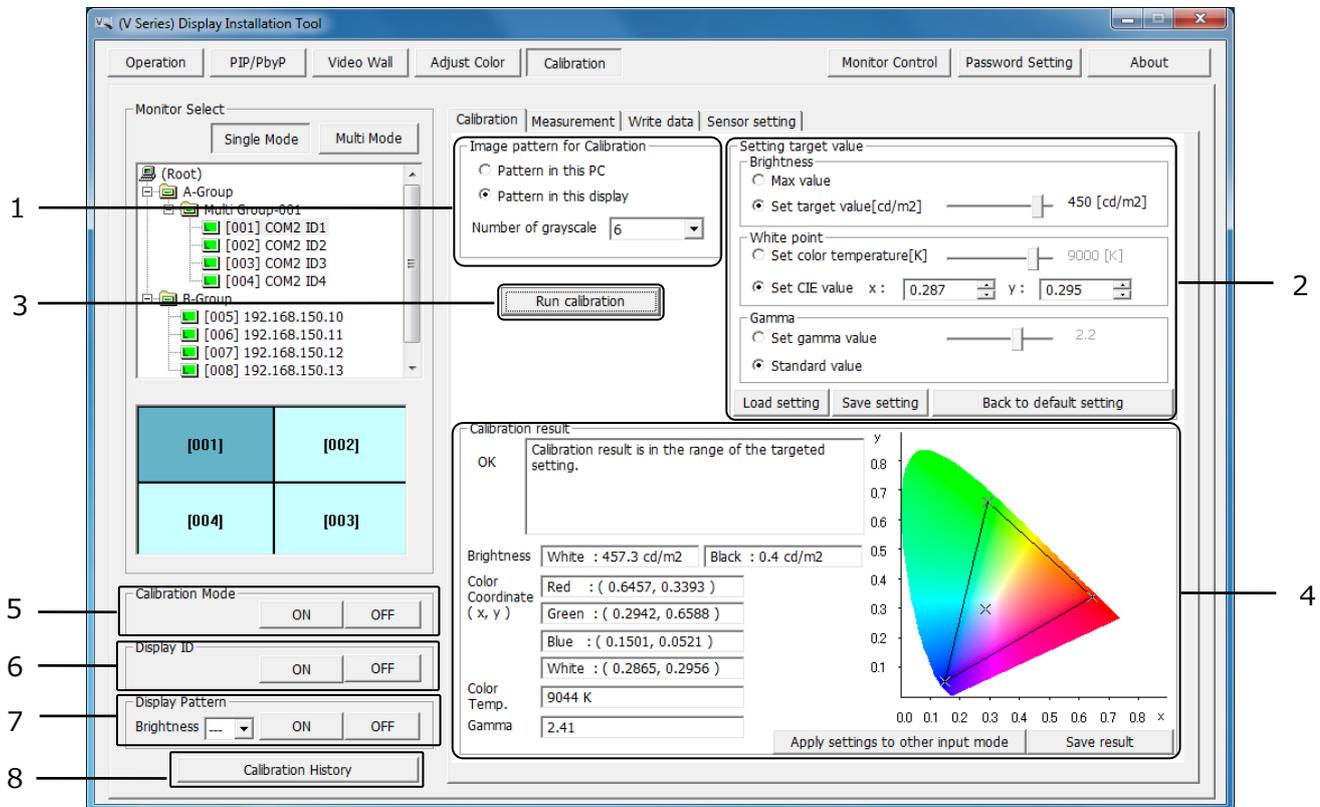
(The monitor name is automatically assigned when adding an LCD MONITOR in Monitor Control.)

- If calibration fails, confirm the following points.
  - Is the measuring device properly connected? Is it firmly attached to the screen?
  - Is the LCD MONITOR that will serve as a reference correct?  
(Is the darkest LCD MONITOR currently chosen?)
  - If the target value is set manually, is the target value correct?
- Successive execution in [Multi Mode] is also possible when performing measurement.
- In [Multi Mode], “Pattern in this PC” in “Image pattern for Calibration” cannot be used.

## ● [Calibration] tab

The Calibration tab specifies the target values and performs the calibration.

You can also save the target values to file and create settings from files with saved target values.



### 1. Image pattern for Calibration

- Pattern in this PC: Outputs a pattern for measurement from the PC. When using this setting, it is necessary to input the video signal of the measuring PC to the LCD MONITOR.
- Pattern in this display: Uses an LCD MONITOR internal pattern for measurement.
- \* Normally, use "Pattern in this display".
- Number of grayscale: Sets the number of grayscale levels. When the levels are increased, adjustments can be made with greater detail but this will take time. Normally, use "6".

### 2. Setting target value

- Sets the target values for brightness, color temperature, and gamma values. The set contents can be saved to file, and the saved settings file can also be loaded and set as target values.
- When [Back to default setting] is clicked, brightness, color temperature, CIE values, and gamma values will return to recommended values.
- To set color temperature to CIE standard light D65 or D50, move the [Set color temperature] slider

to [D65] or [D50].

- Depending on the combination of settings, adjustment may not be possible.

### 3. [Run calibration]

- Performs adjustments for the LCD MONITOR using the set target values.

### 4. Calibration result

- The calibration result is displayed.
- In Single Mode, the result can be saved to a file by clicking [Save result].  
In Multi Mode, the folder where the calibration result files will be saved can be specified by clicking  .
- [When using PN-V602/PN-V600] When [Copy Settings to another input mode] is clicked, Calibration setting is copied to the specified input mode.

### 5. Calibration Mode

- When [ON] is clicked, LCD MONITOR settings such as power and power management will be saved, and settings for performing calibration will change.
- When [OFF] is clicked, settings will return to the saved settings.

### 6. Display ID

- Displays the number of the monitor name (three digits) on the selected LCD MONITOR.  
The monitor name is automatically assigned when adding an LCD MONITOR in Monitor Control.

### 7. Display Pattern

- Displays a white screen using an internal pattern in the selected monitor. The brightness of the LCD MONITOR can also be set.
- Use to check the brightness and color the monitor.

### 8. [Calibration History]

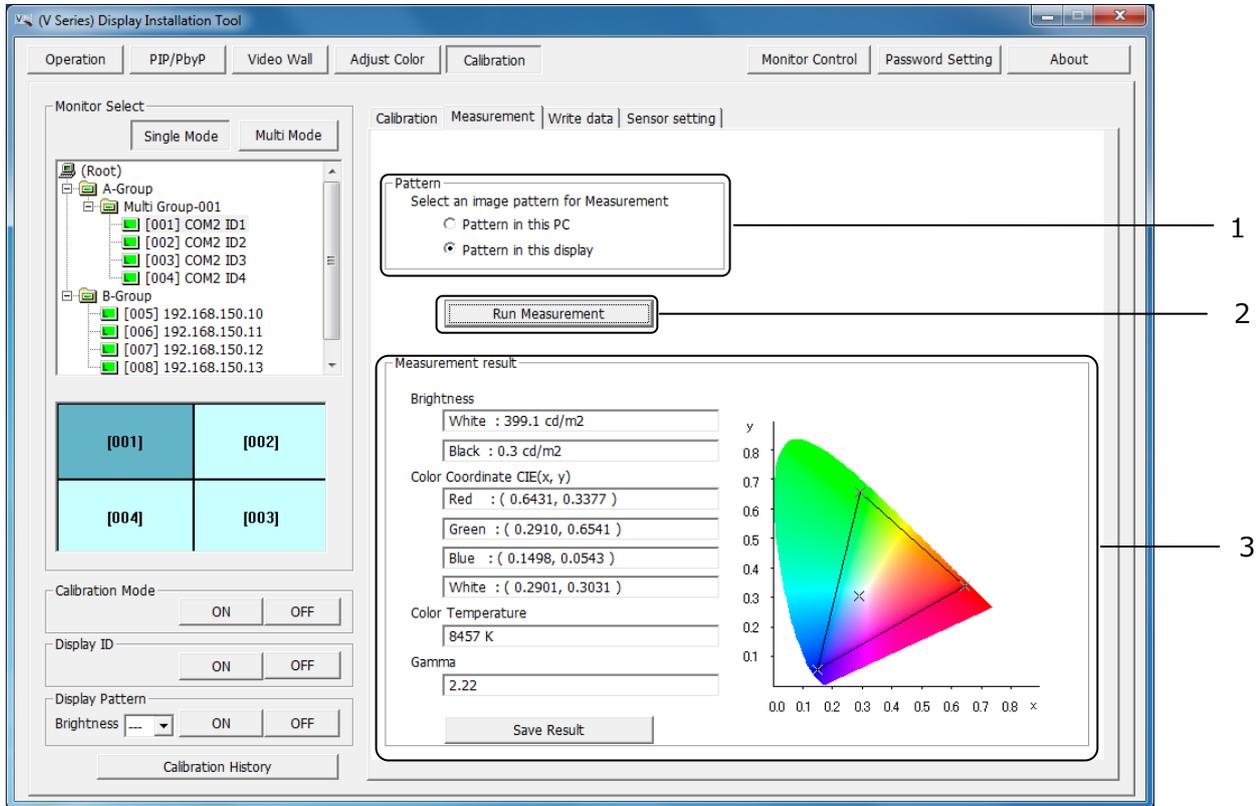
- Displays a list of executed calibrations.

#### [Caution]

When [Display Pattern] is set to [ON], operations except for [Calibration] (for example, [Operation] and [PIP/PbyP]) cannot be used. Do not use a remote control. The pattern display may appear distorted.

## ● [Measurement] tab

The Measurement tab measures brightness, color coordinates, color temperature, and gamma values.



### 1. Pattern

- Pattern in this PC: Outputs a pattern for measurement from the PC. When using this setting, it is necessary to connect video signal of the measuring PC to the LCD MONITOR.
- Pattern in this display: Uses an LCD MONITOR internal pattern for measurement.
- \* Normally, use "Pattern in this display".

### 2. [Run Measurement]

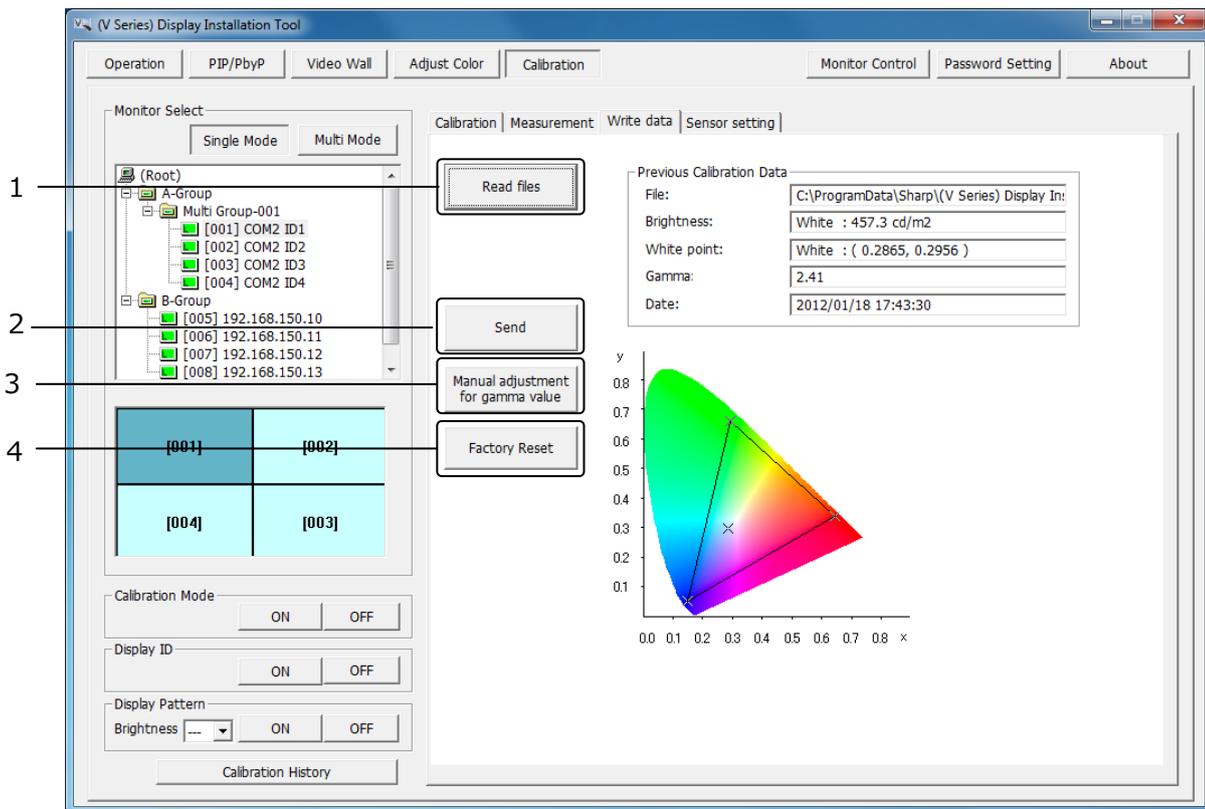
- Starts the measurement process.
- Clicking [Run Measurement] displays a message. Select whether or not to reset the PICTURE settings and -measure.
- When PICTURE settings are reset, [GAMMA] is set to [STD] (Standard). To measure using [2.2] or other settings apart from [STD], set [GAMMA] under PICTURE, and then measure without resetting.

### 3. Measurement result

- Displays the measurement results for brightness, color coordinates, color temperature, and gamma values.
- In Single Mode, the measurement result can be saved as a calibration information file by clicking [Save result]. In Multi Mode, the folder where the calibration information files will be saved can be specified by clicking .

## ● [Write data] tab

The Write data tab reads measurement results and performs manual adjustments for gamma values.

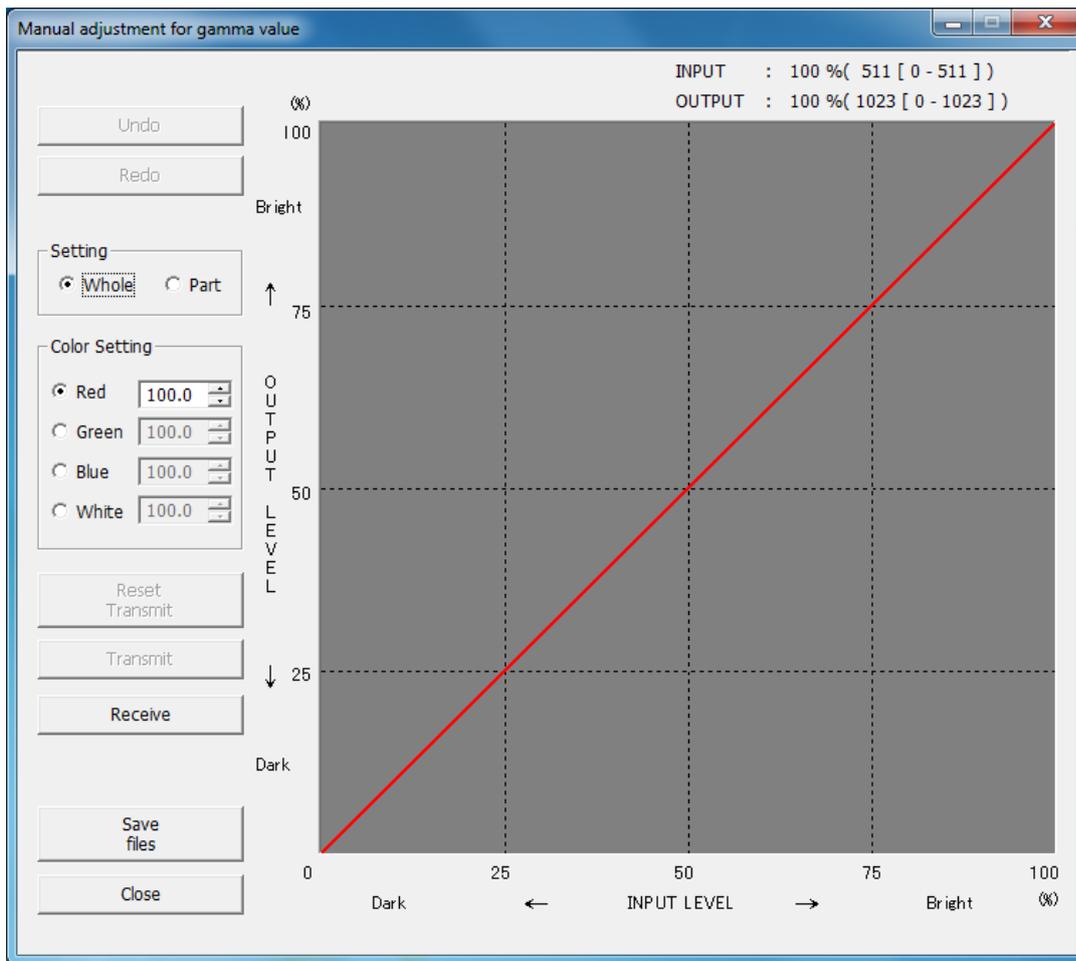


### 1. [Read files]

- You can read saved measurement results, adjustment results, and user gamma adjustment files. The contents of the loaded files are displayed in "Previous Calibration Data" and in the data graph.

### 2. [Send]

- Sends the currently loaded values to the LCD MONITOR.



### 3. [Manual adjustment for gamma value]

- Displays the “Manual adjustment for gamma value” screen.  
Manual adjustment for gamma value screen
- Undo: Returns to the previous state.
- Redo: Repeats the undone operation.
- Setting: Selects the target to be adjusted in “Color Setting”.  
Whole - Adjusts all colors while maintaining all gamma curves.  
Part - Adjusts gamma data of a specific grayscale level.
- Color Setting: Adjusts the “Setting”. Adjust after selecting the color that you would like to adjust.  
“White” collectively adjusts “Red”, “Green”, and “Blue”.  
When “Whole” is selected, change the numerical values.  
When “Part” is selected, adjust the curve after dragging the gamma curve to the area that you would like to adjust.
- Transmit: Transmits currently displayed gamma values to the LCD MONITOR.
- Receive: Reads and displays the gamma values of the currently selected colors from the LCD MONITOR.

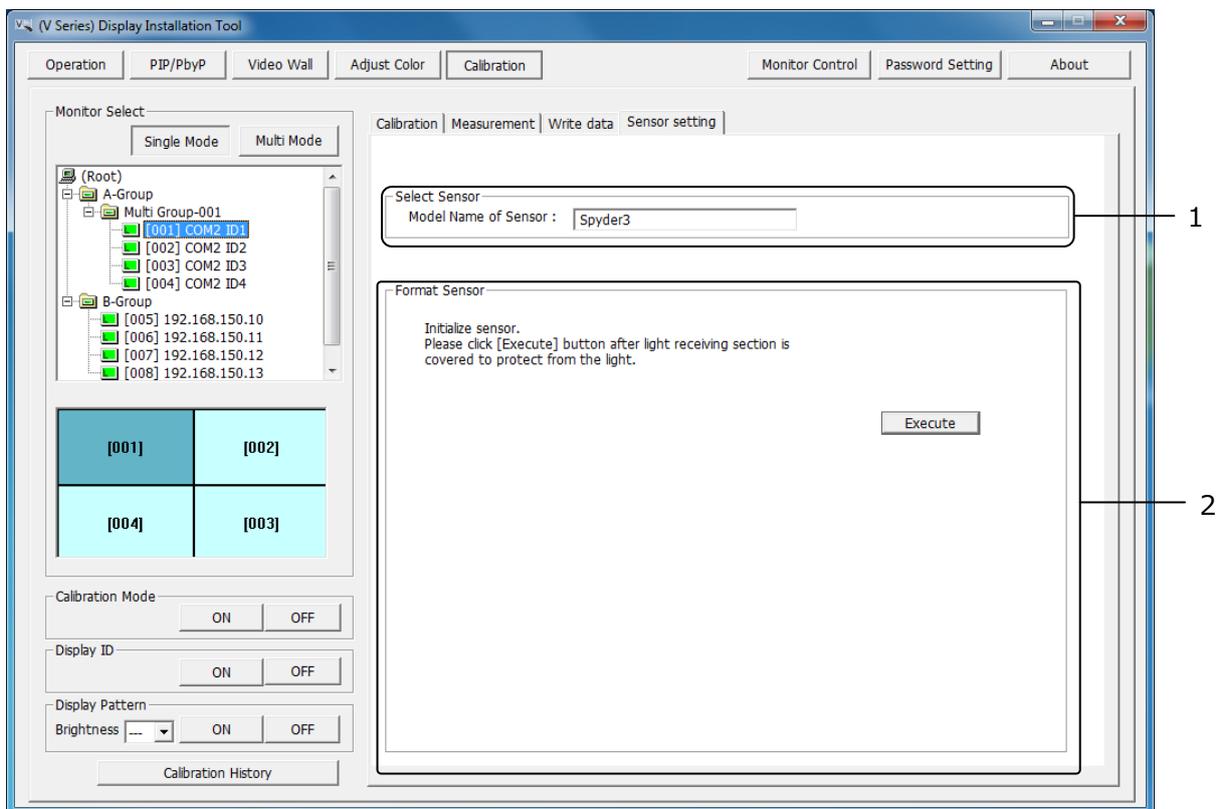
- Save files: Saves currently displayed gamma values as a calibration information file.
- Close: Closes the Manual adjustment for gamma value screen.

#### 4. Factory Reset

Returns the brightness and gamma to their factory preset values.

### ● [Sensor setting] tab

The Sensor setting tab performs initialization of the measuring device.



#### 1. Select Sensor

- Displays the currently connected measuring device.

#### 2. Format Sensor

- When [Execute] is clicked, the selected measuring device will be initialized.

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