

# User's Manual

# ColorEdge® ColorNavigator™

## Important

Please read this User's Manual carefully to familiarize yourself with safe and effective usage procedures.

Please retain this manual for future reference.

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# About This Manual

This manual describes the features, installation and usage of ColorNavigator (calibration software for LCD monitor).

The Mac OS X image capture is given as an example in this manual. In case of using this software in Windows environment, there is somewhat difference.

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# About ColorNavigator

The ColorNavigator software for ColorEdge CG series monitor makes calibration both simple and accurate. You can adjust the monitor settings easily.

\*Please prepare the measurement device separately.

## Features

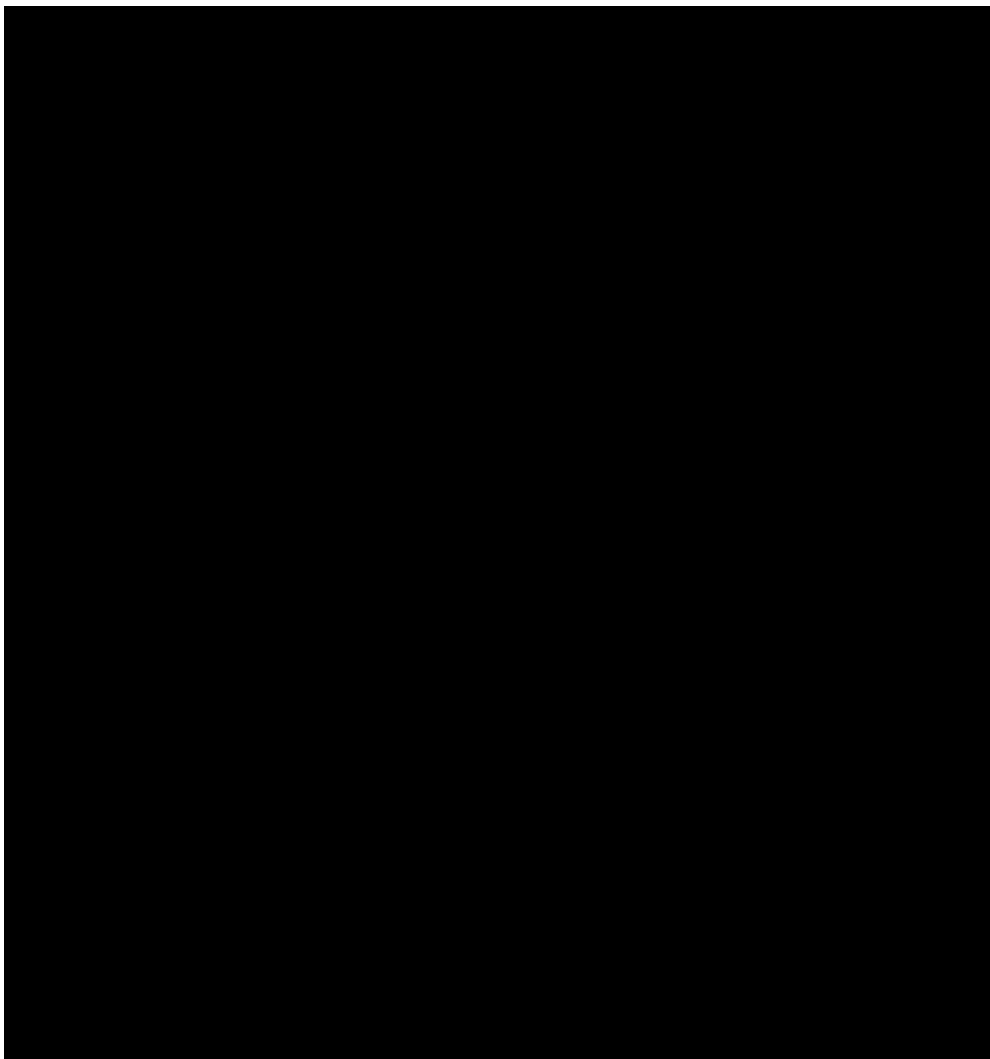
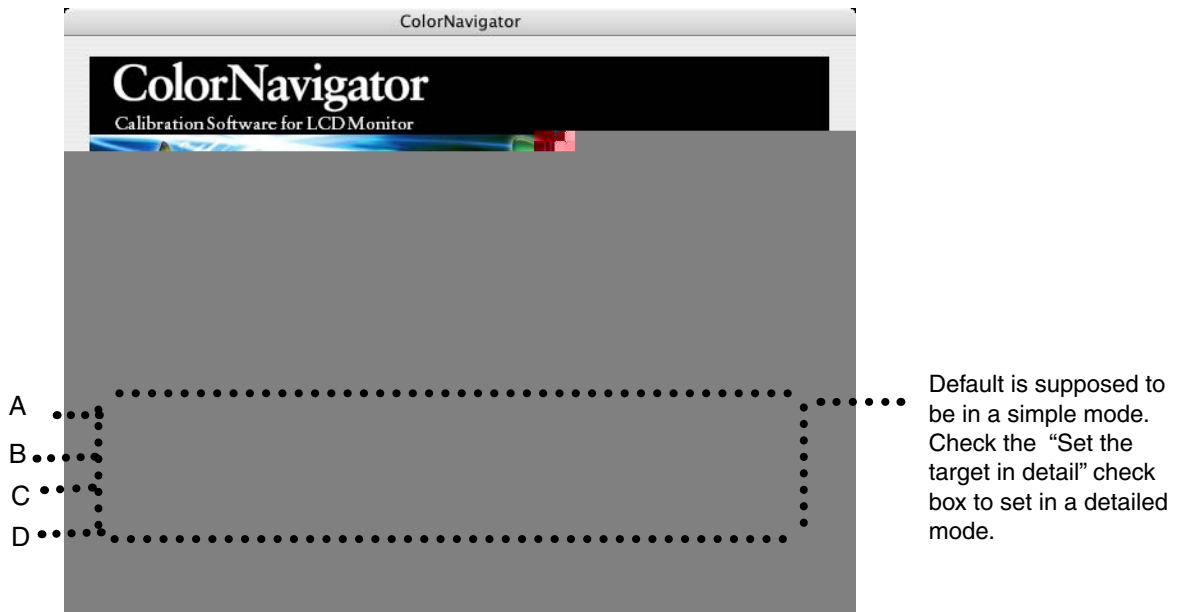
- Precisely calibrating monitor characteristics on the ColorEdge CG series
  - Preset calibration targets for each of principal uses (Simple mode)
  - Specify the brightness, white balance, black level and/or gamma of the monitor (Detailed mode)
  - L\* is available as the target of gamma
  - Displays the measurement result with CIE-chromaticity diagram
  - Generates ICC 2.0 profiles (for Windows)/Apple ColorSync profiles (for Macintosh) based on the measurement result
  - 6 Color adjustment function\*1
  - Manual adjustment function (white balance/brightness/black level/gamma)\*1
  - Measures ambient light\*1
  - Measures paper white\*1
  - Emulation of Monitor Display based on the profile (CG220/CG221)
    - \*1 :The function's availability depends on the monitor or its usage
- Switching monitor display
  - Switches monitor display based on the calibration/emulation result.
- Managing monitor displaying condition
  - Measures the monitor brightness and white balance
  - Calibration records storage capability
- Monitor calibration/emulation support with the timer
- Supporting a multi monitor environment
- Shows Pattern

### Tips

- L\* is a lightness value based on the CIELUV and CIELAB color spaces. CIELUV and CIELAB are color spaces that describe the relationship between color and human vision, in which L\* corresponds to perceived brightness.

## ColorNavigator Software

ColorNavigator Software construction (four choices in accordance with the aim) is as follows. Choose one of the four options on the startup screen to adjust the monitor settings.



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# 1. SETTING UP

Set up the operating environment according to the following procedure. (Install ColorNavigator on the computer and connect the measurement device with the monitor.)

## 1-1. Macintosh

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The following is required for calibrating the monitors in the ColorEdge series with ColorNavigator.

### System Requirements

- Macintosh: satisfy the OS requirement(except iMac and iBook)  
(Built-in USB)
    - Operating System (OS):Mac OS X 10.2 or later / Mac OS 9.2.2
    - Thousands or more colors (millions or more recommended)
    - 1024 x 768 or higher (recommended)
    - USB ports (at least 2 free ports required)
  - EIZO USB Cable (MD-C93)
  - Measurement Device
    - EIZO ColorEdge CX1
    - GretagMacbeth eye-one system
    - ColorVision Spyder2 \*1
    - MonacoOPTIX<sup>XR</sup>/DTP94/X-RiteOPTIX<sup>XR2</sup>/DTP94B \*1
- \* 1: Supporting Mac OS X only

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#### **NOTE**

- You cannot use ColorNavigator in the Classic environment in Mac OS X
  - USB Hub may be required if calibrating several monitors under a multiple monitor environment. Also, USB cables are required for multiple monitor calibration.
  - This product does not contain measurement device.
  - Refer to the user's manual of the measurement device for information about the system requirements.
- 

### Installing ColorNavigator

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#### **NOTE**

- Installing and running ColorNavigator on Mac OS 9, a user account with the following authority is required.
    - Mac OS 9 : "Owner" or "Normal"
  - Please consult your system administrator for your account.
-

## **How to Install**

### **1 Insert the EIZO Utility Disk into the computer's CD-ROM readable device.**

The "EIZO LCD Utility Disk" icon appears on the desktop. Double click the icon to open the window.

### **2 Double click the "Start Menu" icon on the window.**

The start menu opens.



### **3 Click "Install ColorNavigator" on the start menu.**

The ColorNavigator installer starts up. Follow the instructions to complete the installation.

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#### **NOTE**

- The ColorNavigator software overwrites its package if the software is already installed to the system.
- 

## **Confirming the Software Version**

Confirming the Software Version

Mac OS X :

The software version can be confirmed through "Application menu" - "About ColorNavigator...".

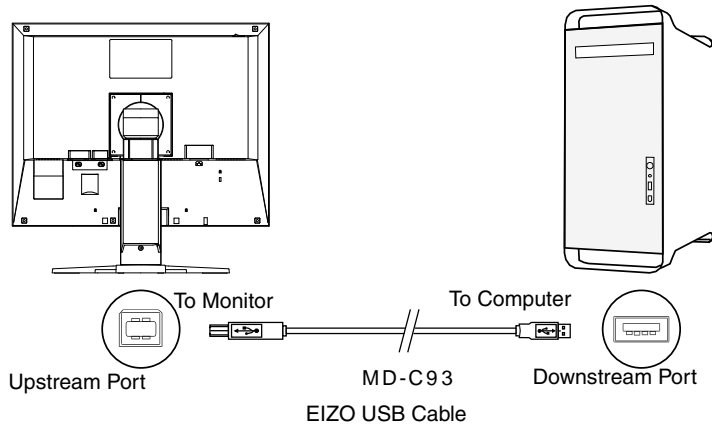
Mac OS 9 :

The software version can be confirmed through "Apple menu" - "About ColorNavigator...".



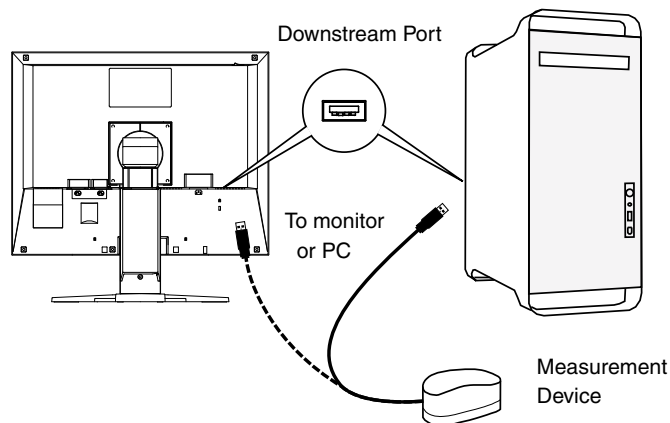
## Connecting the Measurement Device

- 1 Connect the upstream port of monitor and the USB downstream port of computer with the EIZO USB Cable (MD-C93).



- 2 Connect the measurement device to the downstream port of computer; USB keyboard or the monitor:

[ex.:]



### NOTE

- Some measurement devices require a self-powered USB hub. For details, refer to the user's manual of the measurement device.
- If the measurement device is connected after starting up ColorNavigator, it cannot be detected. Be sure to connect the measurement device before starting up the ColorNavigator.

## Starting Up ColorNavigator

### Mac OS X :

Double click the "ColorNavigator" icon in the "Application" - "Utilities".

### Mac OS 9 :

Double click the "ColorNavigator " icon in the specified folder - "ColorNavigator ".

## 1-2. Windows

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The following is required for calibrating the monitors in the ColorEdge series with ColorNavigator.

### **System Requirements**

- Pentium-compatible Processor 300 MHz, physical RAM 128 MB or more(Recommended)
    - PC/AT compatible machine with built-in USB
    - Operating System (OS): Windows 2000 Series / Windows XP Series
    - Colors: 16 bit or more (24 bit or more recommended)
    - Resolution: 1024 x 768 or higher (recommended)
    - USB ports (at least 2 free ports required)
  - EIZO USB Cable (MD-C93)
  - Measurement Device
    - EIZO ColorEdge CX1
    - GretagMacbeth eye-one system
    - ColorVision Spyder2 <sup>\*1</sup>
    - MonacoOPTIX<sup>XR</sup>/DTP94 /X-RiteOPTIX<sup>XR2</sup>/DTP94B
- \* 1: Unsupporting Windows XP 64-bit Edition

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#### **NOTE**

- USB Hub may be required if calibrating several monitors under a multiple monitor environment. Also, USB cables are required for multiple monitor calibration.
  - This product does not contain measurement device.
  - Refer to the user's manual of the measurement device about system requirements.
- 

### **Installing ColorNavigator**

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#### **NOTE**

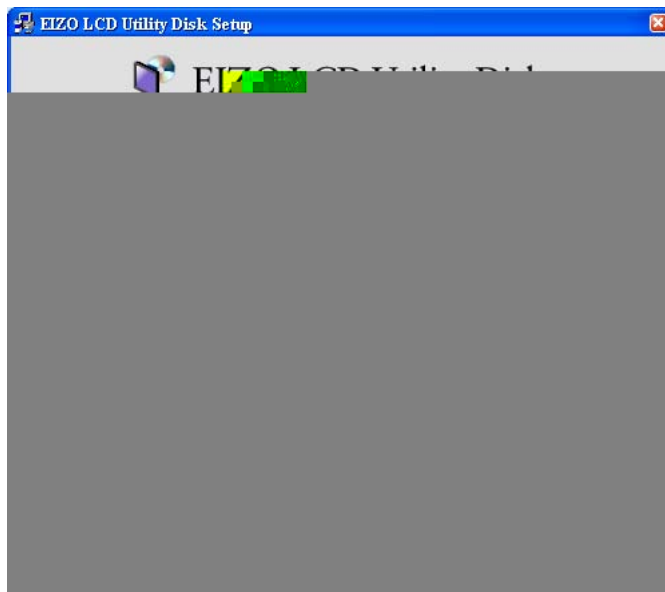
- Installing and running ColorNavigator, a user account with the following authority is required.
    - Windows 2000/ Windows XP : "Administrator"
  - Please consult your system administrator for your account.
-



## How to Install

### 1 Insert the EIZO Utility Disk into the computer's CD-ROM readable device.

The "EIZO LCD Utility Disk" menu automatically opens.



### 2 Click "Install ColorNavigator".

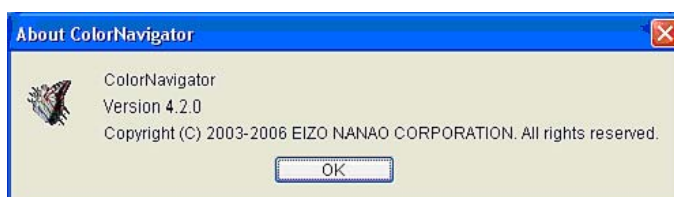
The ColorNavigator installer starts up. Follow the instructions to complete the installation.

#### NOTE

- Double click the "Setup.exe" icon if the menu does not open automatically.
- The ColorNavigator software overwrites its package if the software is already installed to the system.

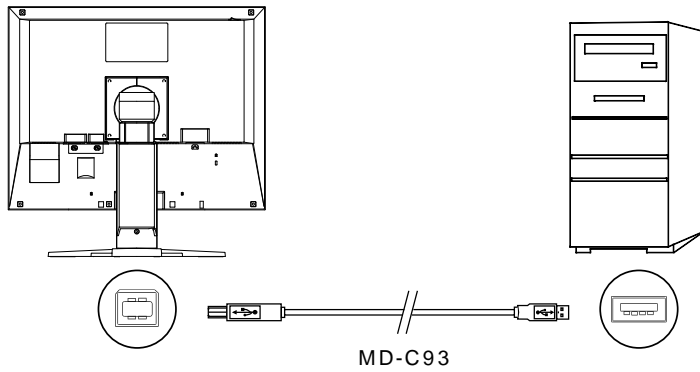
## Confirming the Software Version

The software version can be confirmed through "About ColorNavigator..." by clicking the ColorNavigator icon on the title bar.



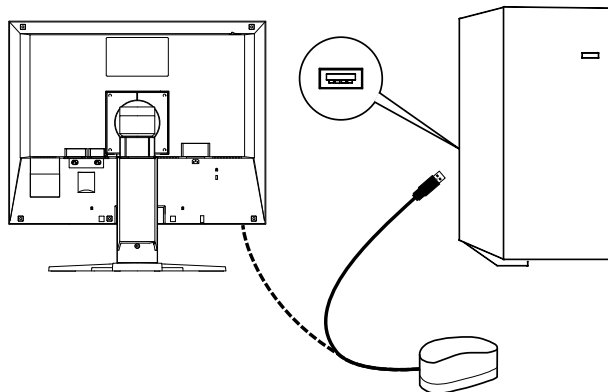
## Connecting the Measurement Device

- 1** Connect the USB upstream of monitor and the USB downstream port of computer with the EIZO USB Cable (MD-C93).



- 2** Connect the measurement device to downstream port of computer; USB keyboard or the monitor:

[ex.:]



## 2. HOW TO CALIBRATE THE MONITOR

The software flow, if choosing [Calibrate brightness, white point and gamma of the monitor, then generate its profile] on the startup window, is shown below.

It is described based on the fact that one monitor is connected to Macintosh. To calibrate several monitors in a multiple monitor environment, refer to "7. USING COLONAVIGATOR WITH MULTIPLE MONITOR ENVIRONMENT".

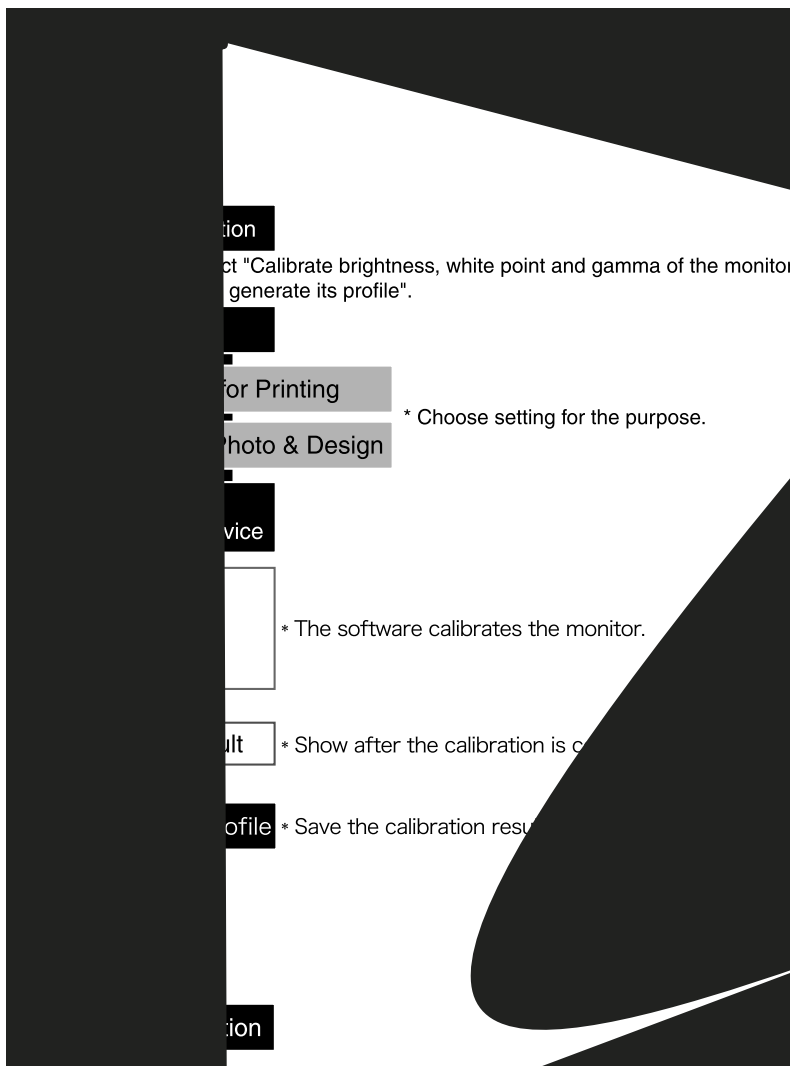
### 2-1. Calibration Procedure (Simple mode)

#### Calibration by selecting the target from list

#### Flow Diagram

##### NOTE

- The suitable modes for the display image are available on the monitor (fine contrast mode).
- When performing the calibration with ColorNavigator, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.)



## **Setup ColorNavigator**

### **1 Turn on both the monitor and the computer 30 minutes before calibration (= warming up)**

Disable the power managing function of them so they will not be in the power save mode.

Quit the other applications before starting up the ColorNavigator. Disable the screen saver so it will not be activated during adjustment and measurement.

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#### **NOTE**

- To obtain precise calibration results, the monitor and computer must be sufficiently warmed-up. Once the monitor goes in the power-save mode, it takes a while for the brightness and color conditions to re-stabilize.
- 

### **2 Set the display resolution and colors**

Set the monitor color at Thousands (16bit) or more [million (24 bit) or more recommended].  
1024 x 768 or higher is recommended.

## **Calibration Procedure**

### **1 Startup ColorNavigator**

#### **Macintosh**

Mac OS X :

Double click "ColorNavigator" icon in the "Application" - "Utilities".

Mac OS 9 :

Double click "ColorNavigator" icon in the specified folder - "ColorNavigator".

#### **Windows**

Double click the "Shortcut to ColorNavigator" icon on the desktop.

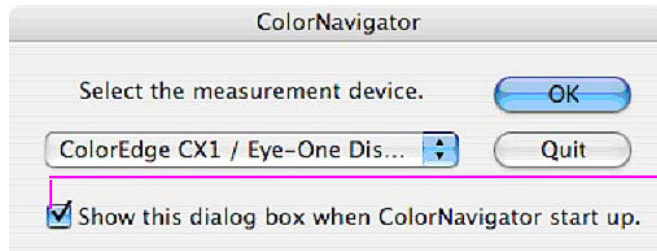
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#### **NOTE**

- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.
- 

### **2 Select a measurement device**

Select the proper measurement device for using ColorNavigator then click [OK].

**Check box**

Shows this dialog box when the software starts next time, even if there is only one measurement device connecting to the PC.

Unchecking the box, this dialog is not shown if the measurement device is detected correctly.

### 3 Select a function

Select [Calibrate brightness, white point and gamma of the monitor, then generate its profile].

**NOTE**

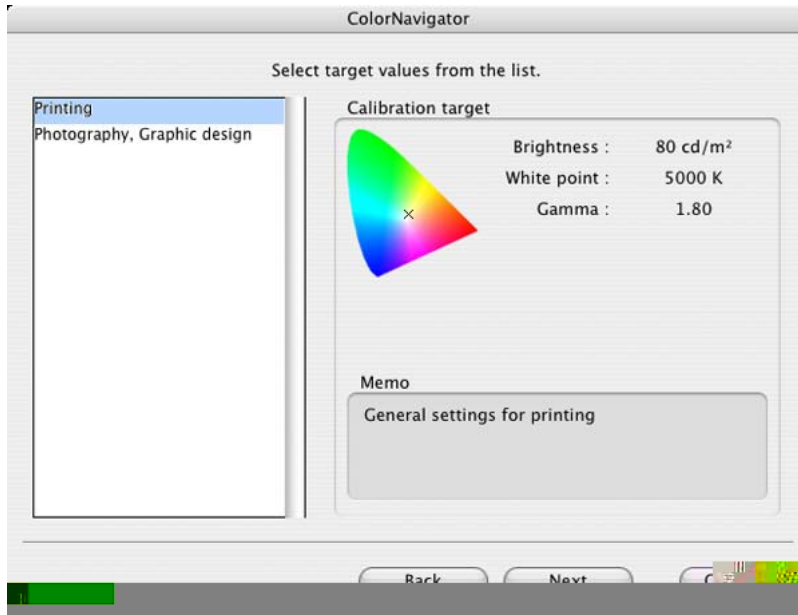
- Be sure to disable "Set target in detail" check box before clicking [Next] to go on to the next step.

### 4 Proceed the "Auto Adjust" button (for analog input only)

Follow the instructions and click the monitor auto adjust function.

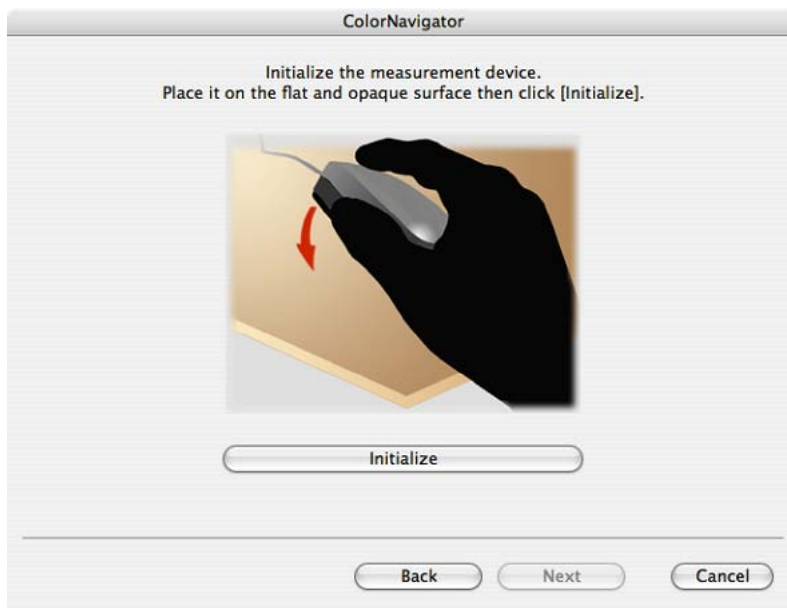
## 5 Set the calibration target

The calibration target window is displayed. Select the calibration target from the list, Printing or Photography/Graphic design.



## 6 Initialize the measurement device

Initialize the measurement device according to the instructions.



Initialization takes a few seconds.

### NOTE

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise calibration results cannot be obtained if light is detected during the initialization process.
- When ColorVision Spyder2 connected to the computer, this window will be skipped.

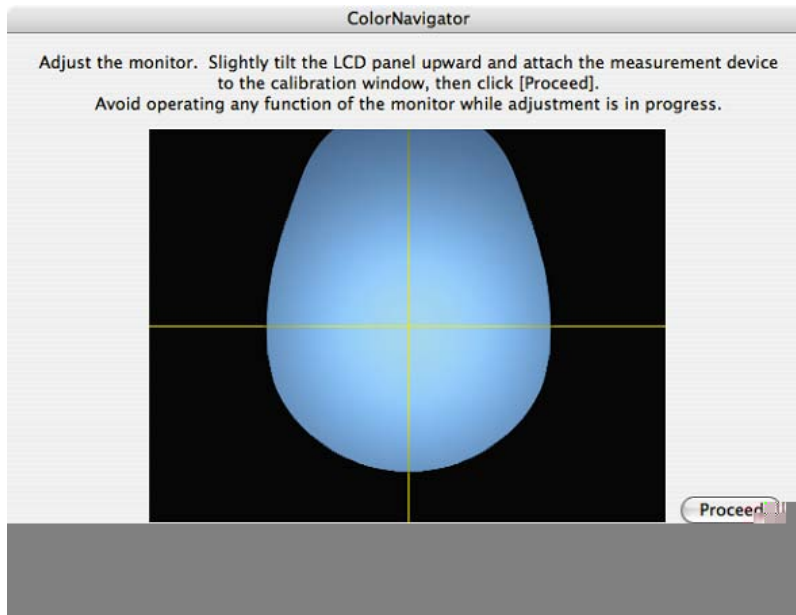
## 7 Proceed calibration

The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window. (Refer to the user's manual of the measurement device)

Proceed with calibration in accordance with the instruction on the message window.

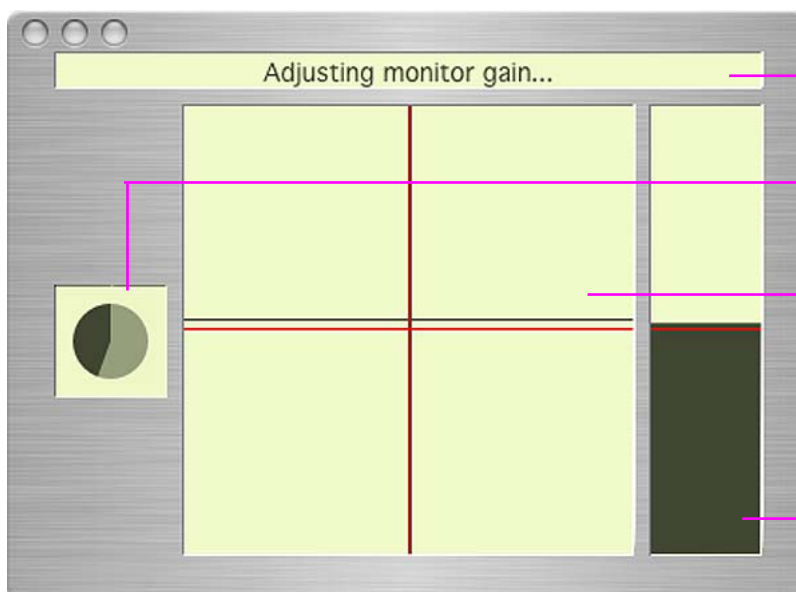
ColorNavigator sequentially shows some patterns for calibrating the monitor. Calibration takes approximately 3 minutes.



### NOTE

- When performing the calibration, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.)
- The figure displayed in this window, depends on the type of measurement device connected to the computer.

Progress bars are displayed on the right-bottom corner while adjustment is in progress.



#### Message display area:

Instructions or any software messages will be displayed while the adjustment is in progress.

#### Progress chart:

The chart shows the status of adjustment.

#### Level display chart :

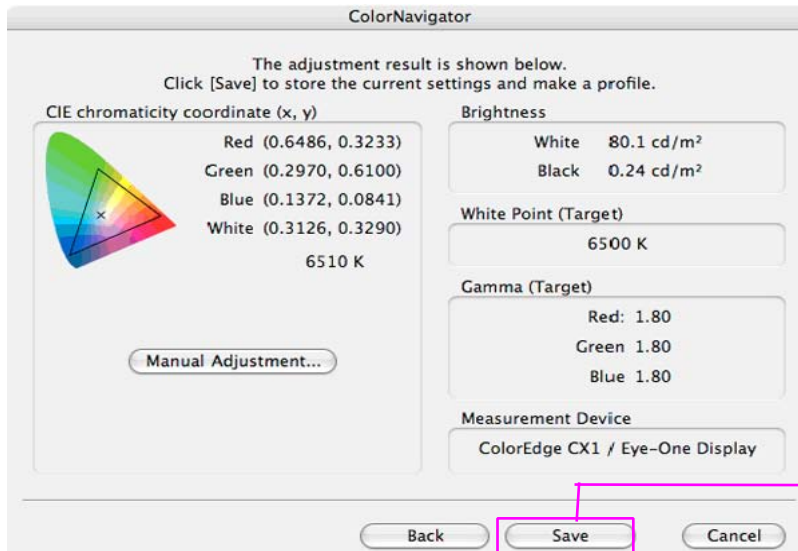
The present adjustment status is plotted in the chart. The red cross line means the target and the black cross line indicates the present status.

#### Brightness bar:

The present brightness level is shown in the brightness bar. The target brightness level is marked in red.

## 8 Confirm the result

When the calibration has been finished, the result window will appear. Confirm the result.



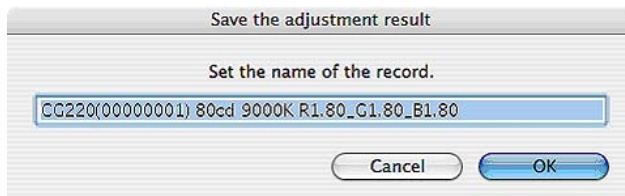
Store the adjustment result and generate a monitor profile.

### NOTE

- If the black level is shown as minus value, start calibration from the beginning again. Light could have seeped through to the sensor of the measurement device during initialization. Be sure to attach the measurement device to the monitor closely.

## 9 Generate a profile

Click [Save] to generate a profile.



When the profile has been saved, the successful message will appear.

### Tips

- Name the profile within 63 characters.
- A save name cannot contain any of the following character: \ / : \* ? " < > |
- Generating a profile allows the ColorNavigator software to switch the monitor color settings based on the calibration result (Refer to "4. LOADING/SETTING THE ADJUSTMENT RESULT").



**NOTE**

- The suitable modes for the display image are available on the monitor (fine contrast mode).
  - When performing the calibration with ColorNavigator, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.) Use CAL mode for the monitor.
  - Once the monitor is calibrated by ColorNavigator, avoid adjusting the monitor image to no purpose. If the monitor image is adjusted after calibration, the calibration result will be lost.
  - Do not select the color profile on your OS after the profile is saved, or the calibration result will be lost.
-

## 2-2. Calibration Procedure (Detailed mode)

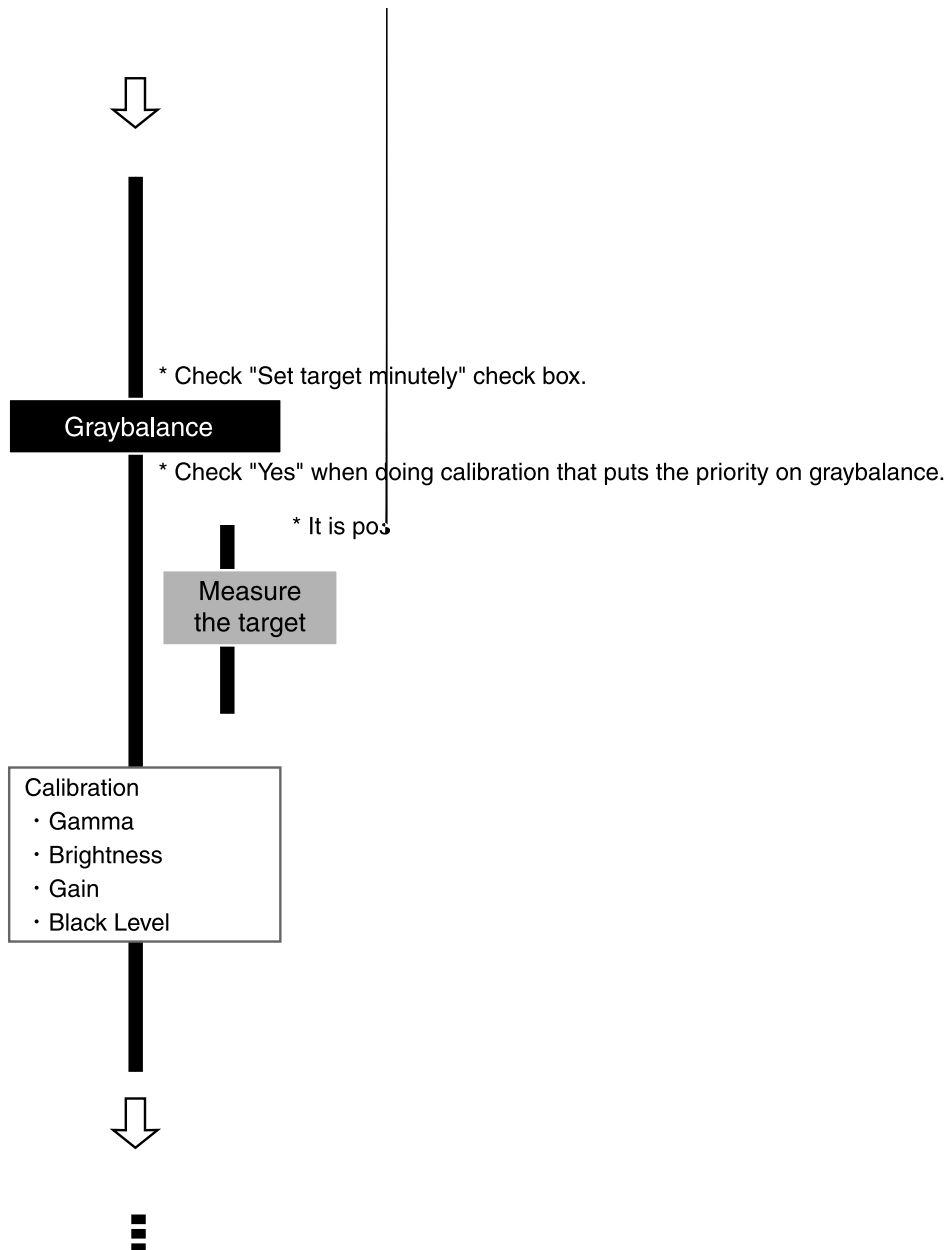
### Calibration in detailed mode

It is possible to set the calibration target by specifying each value of brightness, white point and gamma.

### Flow Diagram

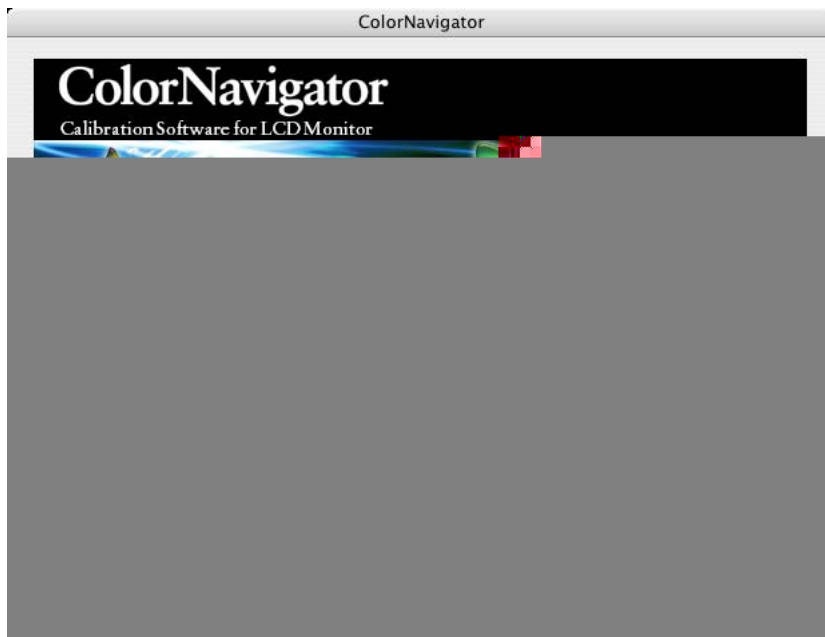
**NOTE**

- The suitable modes for the display image are available on the monitor (fine contrast mode).
- When performing the calibration with ColorNavigator, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.)
- When adjusting 6 colors on CG18, CG19, CG21 monitors, the calibration result is registered to the Custom mode.





- 3** Select [Calibrate brightness, white point and gamma of the monitor; then generate its profile] and check "Set target in detail" check box on the startup window



- 4** The following Priority on graybalance window will appear (If the monitor is CG18, CG19 or CG21, it will not appear.)

If calibrating that puts the priority on graybalance, click the radio button "Yes" in "Do you want to put the priority on graybalance?".

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**NOTE**

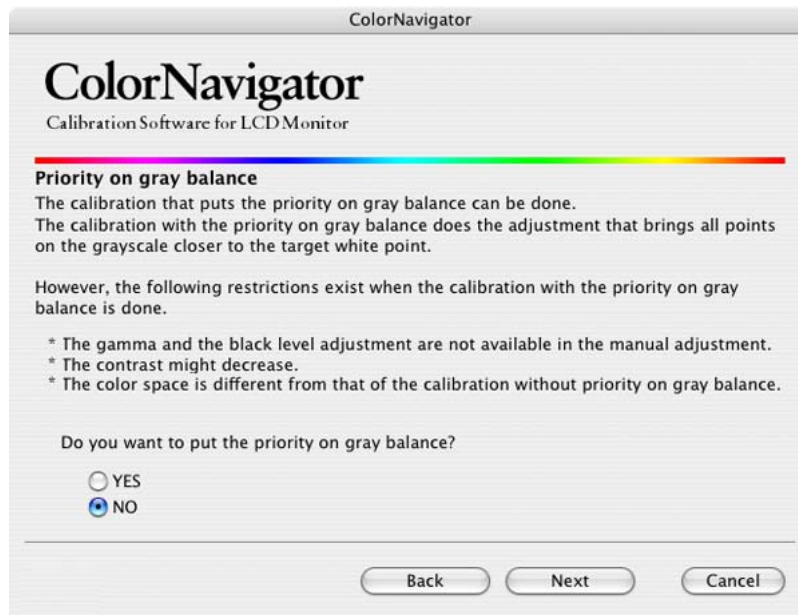
**About gray balance**

The calibration with the priority on gray balance does the adjustment that brings all points on the grayscale closer to the target white point.

Select priority gray balance to correct RGB color balance of the grayscale in the middle tone.

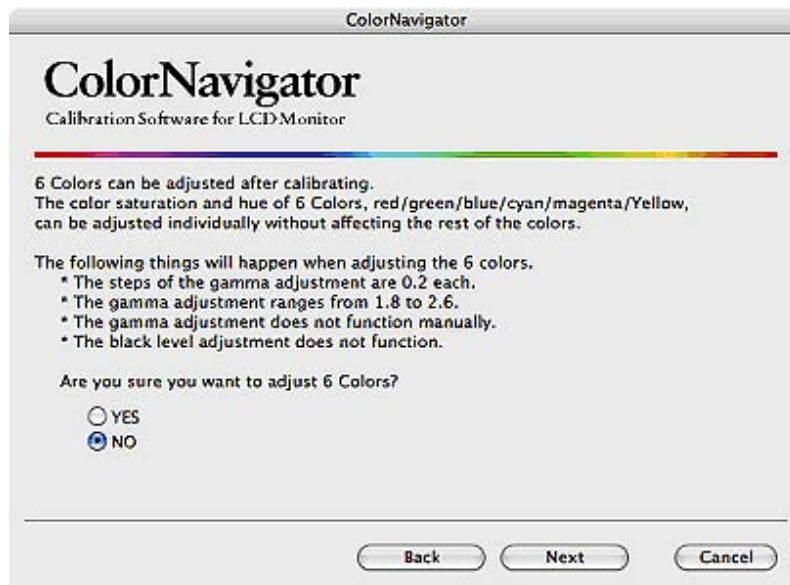
However, the following restrictions exist when the calibration with the priority on gray balance is done.

- The gamma and the black level adjustment are not available in the manual adjustment.
  - The contrast might decrease.
  - The color space is different from that of the calibration without priority on gray balance.
  - In the state to raise the contrast by using "Contrast emphasis" function (part of the universal access function) when using it with Mac OS X, the gray balance cannot be adjusted. Please turn off the contrast emphasis.
  - The gray balance cannot be adjusted with ColorVision Spyder2 and this window will not appear.
-



## 5 If the monitor is CG 18, CG 19 or CG 21, the following window will appear

If adjusting the 6 Colors after calibrating, click the radio button "Yes" in "Are you sure you want to adjust 6 Colors?".



## 6 Proceed the "Auto Adjust" button (analog input only)

Follow the software instructions and click the monitor auto adjust function.

## 7 Set the calibration target

The calibration window is displayed.

### Brightness, White Point, Gamma and Black level :

Set the calibration target (brightness, white point and gamma) on the following configuration window. The target white point can be set by x-y color coordinates.

Input values into each input area.

Set the monitor brightness while displaying white color over the screen.

Extends the setting range of the target brightness.

Adjusts the black level.

Set the target of the white point by measuring ambient light or paper white. (The brightness is also changed by measuring paper white.)

Set the gamma. About L\*, the selectable gamma value, refer to "About ColorNavigator".

Set the color temperature. The white point can be set with numerical input.

### NOTE

- If setting the target white by color coordinates, assign the target between 0.24 and 0.45 for x-coordinate and y-coordinate.
- The black level adjustment does not function when adjusting it by six colors with CG18, CG19, and CG21. In that case, "Adjust the black level" check box is not displayed.

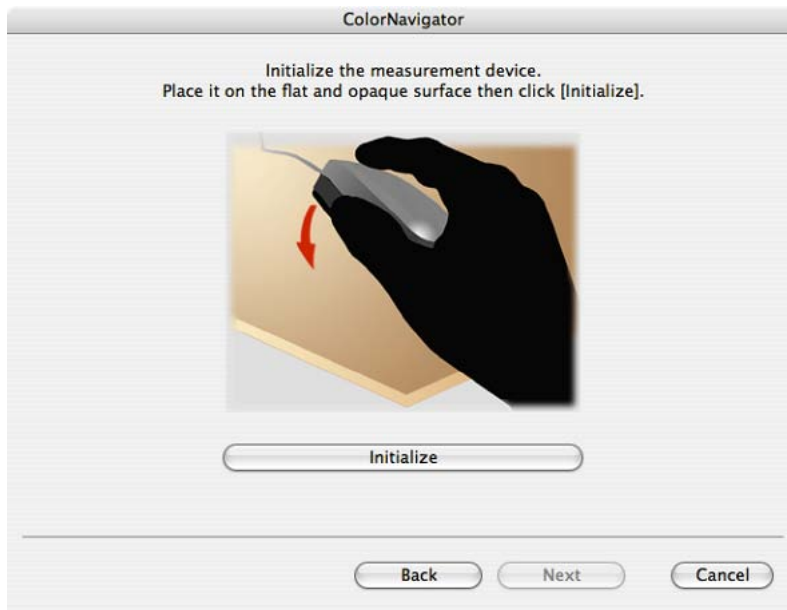
### Tips : Ambient light measurement / Paper white measurement

Some measurement devices can set the measurement results below for the target values. Click the [Measure the target...]. (See 6-1. Ambient light measurement / Paper white measurement.)

- Ambient light is measured and set to be the target coordinates of a white point.
- White point and brightness of the paper (paper white) are measured and set to be the target value of a white point and the target brightness.

## 8 Initialize the measurement device

Initialize the measurement device according to the instructions.



Initialization takes a few seconds.

### **NOTE**

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise calibration results cannot be obtained if light is detected during the initialization process.
- When ColorVision Spyder2 connected to the computer, this window will be skipped.

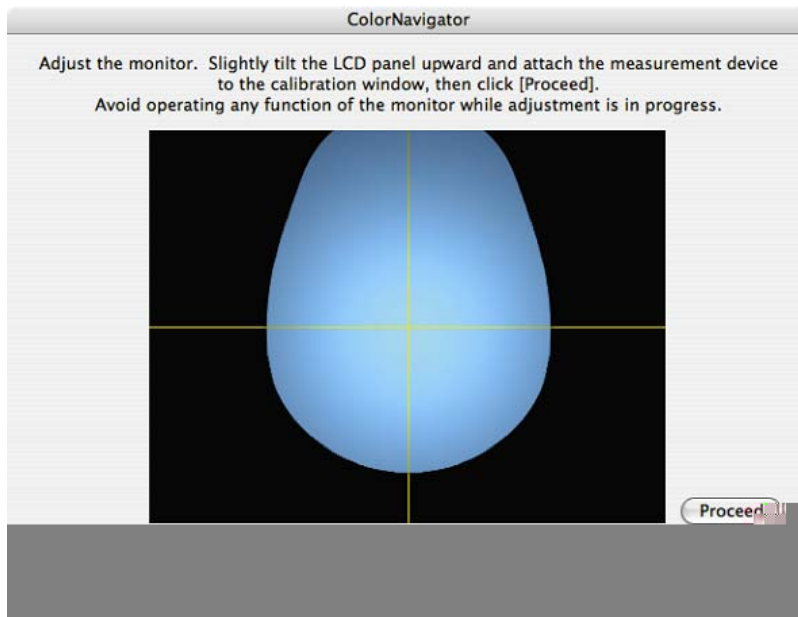
## 9 Proceed calibration

The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window. (Refer to the user's manual of the measurement device)

Proceed with calibration in accordance with the instruction on the message window.

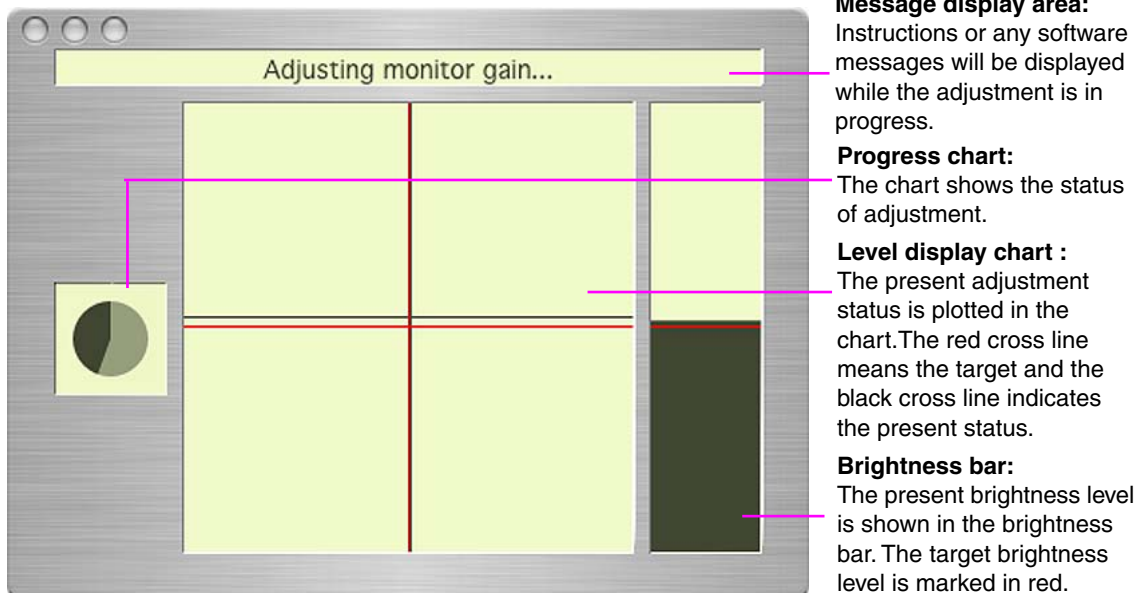
ColorNavigator sequentially shows some patterns for calibrating the monitor. Calibration takes approximately 3 minutes.



**NOTE**

- When performing the calibration, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.) The result is registered in Custom when adjusting six colors by CG18, CG19, and CG21.
- The figure displayed in this window, depends on the type of measurement device connected to the computer.

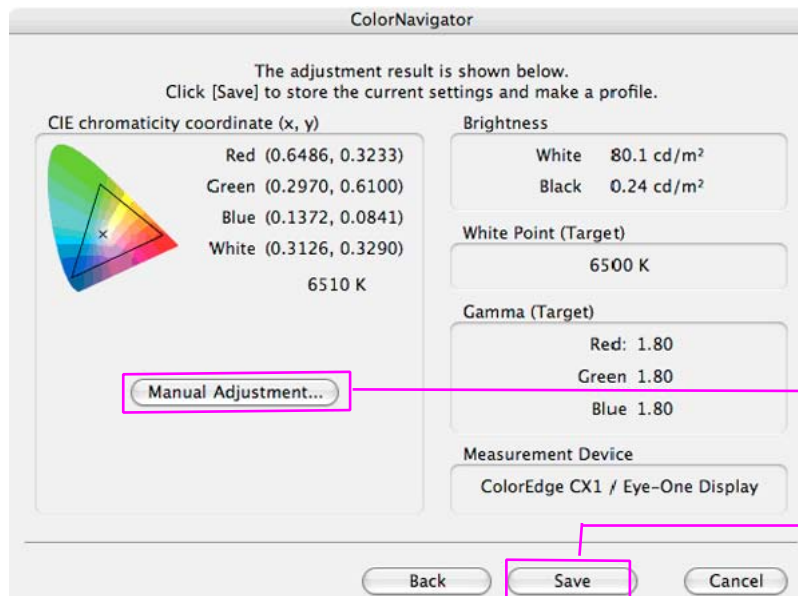
Progress bars are displayed on the right-bottom corner while adjustment is in progress.



## 10 Confirm the result

When the calibration has been finished, the result window will appear. Confirm the result.





[Manual adjustment]: Click the button when correcting the white point, brightness, black level, gamma and the hue and saturation of those 6 colors (red/green/blue/cyan/ magenta/yellow).

Store the adjustment result and generate a monitor profile.

### NOTE

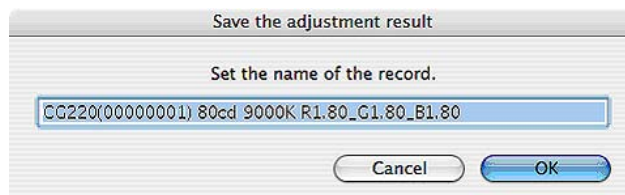
- If the black level is shown as minus value, start calibration from the beginning again. Light could have seeped through to the sensor of the measurement device during initialization. Be sure to attach the measurement device to the monitor closely.

### Tips: Manual Adjustment

- It is possible to adjust the result manually. Click "Manual Adjustment" to adjust the monitor manually. Refer to "6-2. Manual Adjustment" for details.

## 11 Generate a profile

Click [Save] to generate a profile.



When the profile has been saved, the successful message will appear.

### Tips

- "Gray" is displayed at the end of the file name when the calibration that puts the priority on gray balance is done.
- Name the profile within 63 characters.
- A save name cannot contain any of the following character: \ / : \* ? " < > |
- Generating a profile allows the ColorNavigator software to switch the monitor color settings based on the calibration result (Refer to "4. LOADING/SETTING THE ADJUSTMENT RESULT").

### **NOTE**

- The suitable modes for the display image are available on the monitor (fine contrast mode).
  - When performing the calibration with ColorNavigator, the monitor automatically switches to the CAL mode (i.e. Calibration mode). The calibration result is only registered in CAL mode. (The result is not registered in other modes.) Use CAL mode for the monitor.
  - When adjusting 6 colors on CG18, CG19, CG21 monitors, the calibration result is registered to the Custom mode.
  - Once the monitor is calibrated by ColorNavigator, avoid adjusting the monitor image to no purpose. If the monitor image is adjusted after calibration, the calibration result will be lost.
  - Do not select the color profile on your OS after the profile is saved, or the calibration result will be lost.
- 

## 2-3. Periodic Readjustment

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### **Periodic Readjustment**

The monitor brightness and color gradually alter. To compensate for changes, calibrating every 2-4 weeks is recommended. It can be performed with the timer.

The monitor should be re-calibrated if the system configuration is changed as below.

- Changing the computer or graphics board
- Changing the connector on the monitor (ex. from SIGNAL1 to SIGNAL2) to the computer or graphics board
- Changing the monitor resolution or color
- Adjusting the monitor screen

### **Timer**

If the timer is set, a message will appear after calibrating.

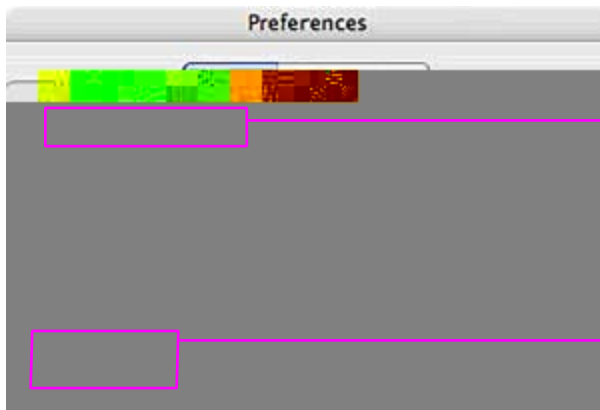
### **Macintosh**

Mac OS X: Click [Application menu]-[Preferences...] to open the timer setup window.

Mac OS 9: Click [Apple Menu]-[Preferences...] to open the timer setup window.

### **Windows**

Click the ColorNavigator icon on the title bar and select "Preferences"- "Timer" tab to open the timer setup window



"Show Warning" check box:  
Enable the check box to activate timer.

The timer can be set between 50 and 1,000 hours. The setup varies depending on the time.

The timer can be set between 50 and 1,000 hours. The setup varies depending on the time.

Time	Setup
50-100 hrs	every 10 hr
100-200 hrs	every 20 hr
200-500 hrs	every 50 hr
500-1000 hrs	every 100 hr

Click [OK] after setting the time.

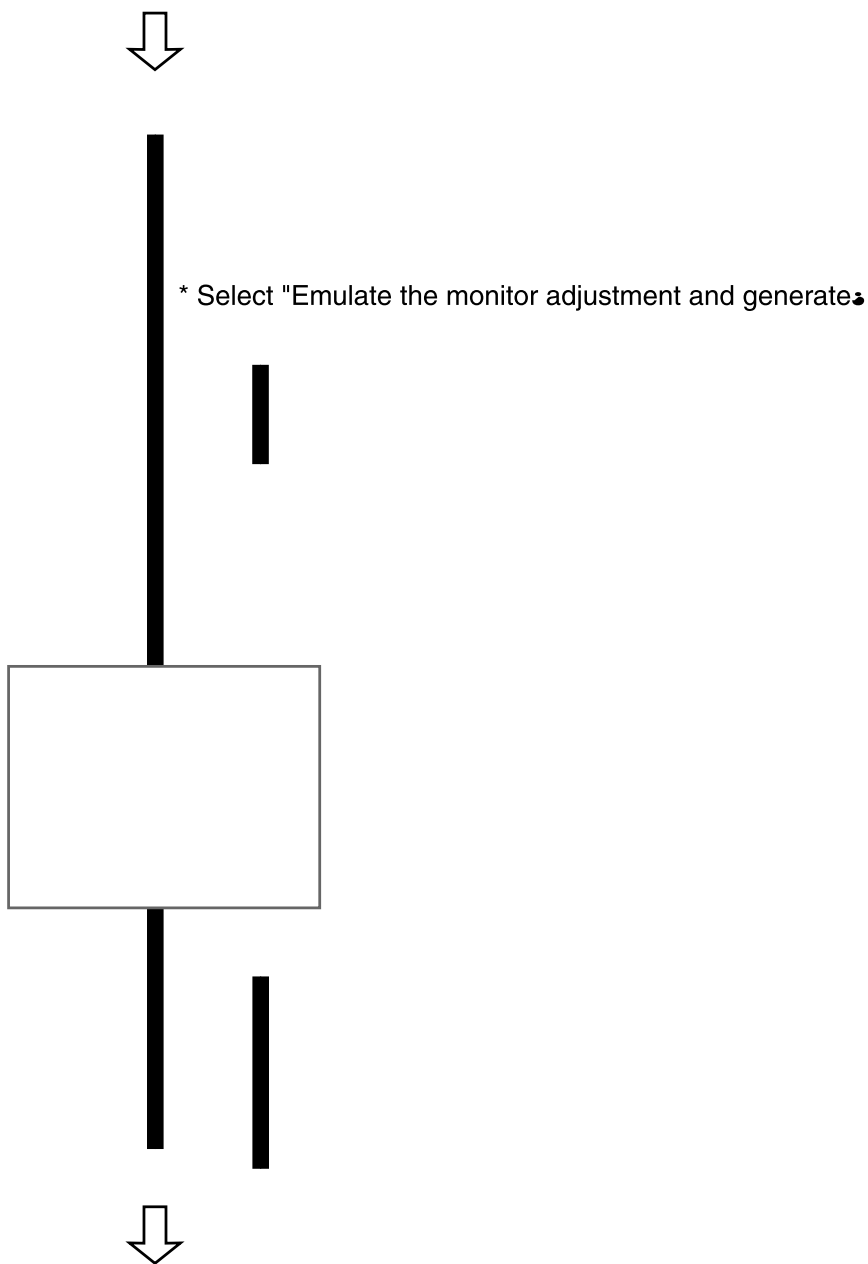
# 3. How to emulate the monitor

**Tips**

- This function is only available on CG220 and CG221.

## 3-1. Flow Diagram

The software flow, if choosing [Emulate the monitor adjustment and generate a profile] on the startup window, is shown below.



## 3-2. Emulation Procedure

---

It is described based on the fact that one monitor is connected to Macintosh. To emulate several monitors in a multiple monitor environment, refer to "7. USING COLORNAVIGATOR WITH MULTIPLE MONITOR ENVIRONMENT".

### Setup ColorNavigator

#### 1 Turn on both the monitor and the computer 30 minutes before emulation (= warming up)

Disable the power managing function of them so they will not be in the power-save mode.

Quit the other applications before starting up the ColorNavigator.

Disable the screen saver so it will not be activated during adjustment or measurement.

#### NOTE

- To obtain precise emulation results, the monitor and computer must be sufficiently warmed-up. Once the monitor goes in the power-save mode, it takes a while for the brightness and color conditions to re-stabilize.

#### 2 Set the display resolution and colors

Set the monitor color at Thousand (16 bit) or more [millions (24 bit) or more recommended].

1024 x 768 or higher is recommended.

### Startup ColorNavigator

#### 1 Startup ColorNavigator

##### Macintosh

Mac OS X :

Double click "ColorNavigator" icon in the "Application" - "Utilities".

Mac OS 9 :

Double click "ColorNavigator" icon in the specified folder - "ColorNavigator".

##### Windows

Double click the "Shortcut to ColorNavigator" icon on the desktop.

#### NOTE

- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.

#### 2 Select a measurement device

Select the proper measurement device for using ColorNavigator then click [OK].

### 3 Select a function

Select [Emulate the monitor adjustment and generate a profile] on the startup window.

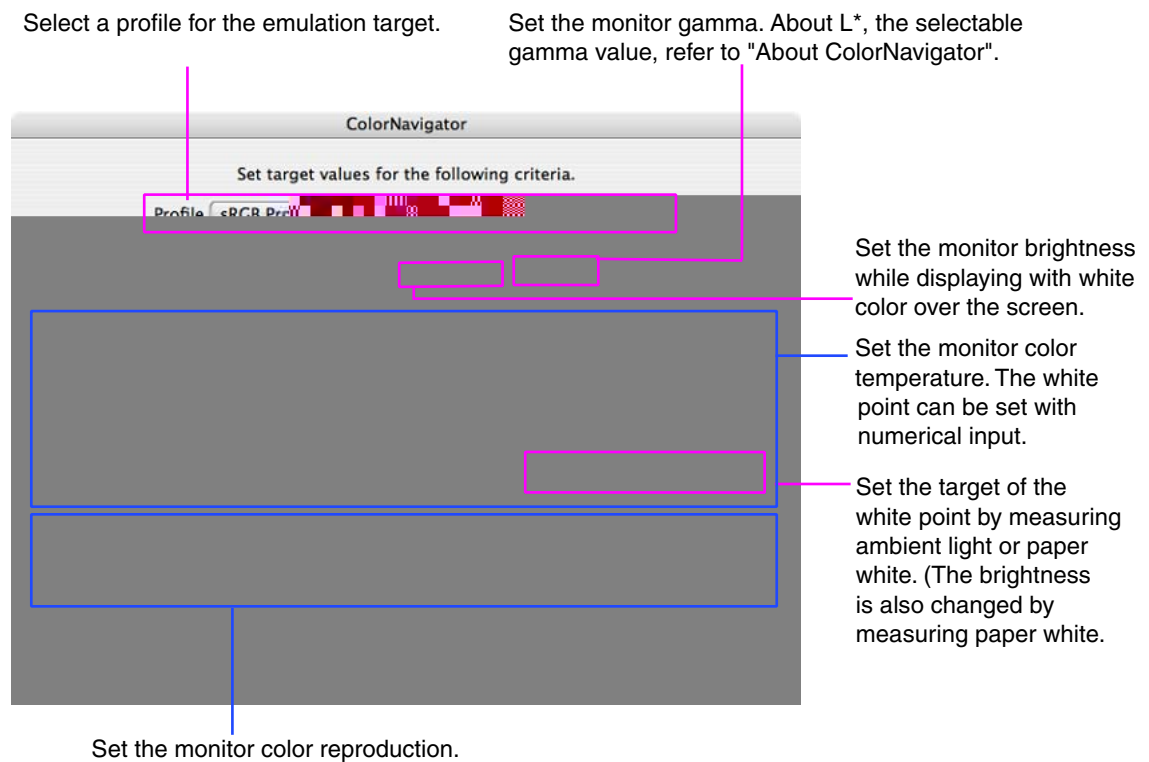
### 4 Proceed the "Auto Adjust" button (analog input only)

Follow the software instructions and click the monitor auto adjust function.

### 5 Set the emulation target

The setup window appears. Select a profile for emulation from the pull-down menu.

The information of the selected profile white point, color reproduction area, gamma and so on will appear. The target can be set when needed.



#### NOTE

- If setting the target white by color coordinates, assign the target appropriate black body locus and between 0.24 and 0.45 for x-coordinate and y-coordinate.
- When the target white has been changed, its profile must be changed "manually".

#### Tips : Ambient light measurement / Paper white measurement

Some measurement devices can set the measurement results below for the target values. Click the [Measure the target...]. (See 6-1. Ambient light measurement / Paper white measurement.)

- Ambient light is measured and set to be the target coordinates of a white point.
- White point and brightness of the paper (paper white) are measured and set to be the target value of a white point and the target brightness.

## 6 Initialize the measurement device

Initialize the measurement device according to the software instructions.

Initialization takes a few seconds. After the initialization, click [Next] to go on to the next step.

### NOTE

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise results cannot be obtained if light is detected during the initialization process.
- When ColorVision Spyder2 connected to the computer, this window will be skipped.

## 7 Proceed emulation

The measurement window appears on the screen. Proceed with emulation in accordance with the instruction.

ColorNavigator sequentially shows some patterns for emulating the monitor. Emulation takes approximately 3 minutes.

### NOTE

- When performing the emulation, the monitor automatically switches to the EMU mode (i.e. emulation mode). The emulation result is only registered in EMU mode. (The result is not registered in other modes.)
- The figure displayed in this window, depends on the type of measurement device connected to the computer.

Progress bars are displayed on the right-bottom corner while adjustment is in progress.

## 8 Confirm the result

When the emulation has been finished, the result window will appear. Confirm the result.

The screenshot shows the ColorNavigator software window with the following content:

The adjustment result is shown below.  
Click [Save] to store the current settings and make a profile.

**CIE chromaticity coordinate (x, y)**

Red	(0.6486, 0.3233)
Green	(0.2970, 0.6100)
Blue	(0.1372, 0.0841)
White	(0.3126, 0.3290)

6510 K

Manual Adjustment...

**Brightness**

White	80.1 cd/m <sup>2</sup>
Black	0.24 cd/m <sup>2</sup>

**White Point (Target)**

6500 K

**Gamma (Target)**

Red	1.80
Green	1.80
Blue	1.80

**Measurement Device**

ColorEdge CX1 / Eye-One Display

Back Save Cancel

**NOTE**

- If the black level is shown as minus value, start emulation from the beginning again. Light could have seeped through to the sensor of the measurement device during initialization. Be sure to attach the measurement device to the monitor closely.
- 

**Tips: Manual Adjustment**

- It is possible to adjust the result manually. Click "Manual Adjustment" to adjust the monitor manually. Refer to "6-2. Manual Adjustment" for details.
- 

## 9 Generate a profile

Click [Save] to generate a profile.

When the profile has been saved, the successful message will appear.

---

**Tips**

- Name the profile within 63 characters.
  - A save name cannot contain any of the following character: \ / : \* ? " < > |
  - Generating a profile allows the ColorNavigator software to switch the monitor color settings based on the emulation result (Refer to "4. LOADING/SETTING THE ADJUSTMENT RESULT").
- 

**NOTE**

- The suitable modes for the display image are available on the monitor (fine contrast mode).
  - When performing the emulation with ColorNavigator, the monitor automatically switches to the EMU mode (i.e. Emulation mode). The emulation result is only registered in EMU mode. (The result is not registered in other modes.) Use EMU mode for the monitor.
  - Once the monitor is calibrated by ColorNavigator, avoid adjusting the monitor image to no purpose. If the monitor image is adjusted after emulation, the emulation result will be lost.
  - Do not select the color profile on your OS after the profile is saved, or the emulation result will be lost.
- 

## 3-3. Periodic Readjustment

---

### Periodic Readjustment

The monitor brightness and color gradually alter.

To compensate for changes, emulating every 2-4 weeks is recommended. It can be performed with the timer.

The monitor should be re-emulated if the system configuration is changed as below.

- Changing the computer or graphics board
  - Changing the connector on the monitor (ex. from SIGNAL1 to SIGNAL2) to the computer or graphics board
  - Changing the monitor resolution or color
  - Adjusting the monitor screen
-



## Timer

If the timer is set, a message will appear after emulating.

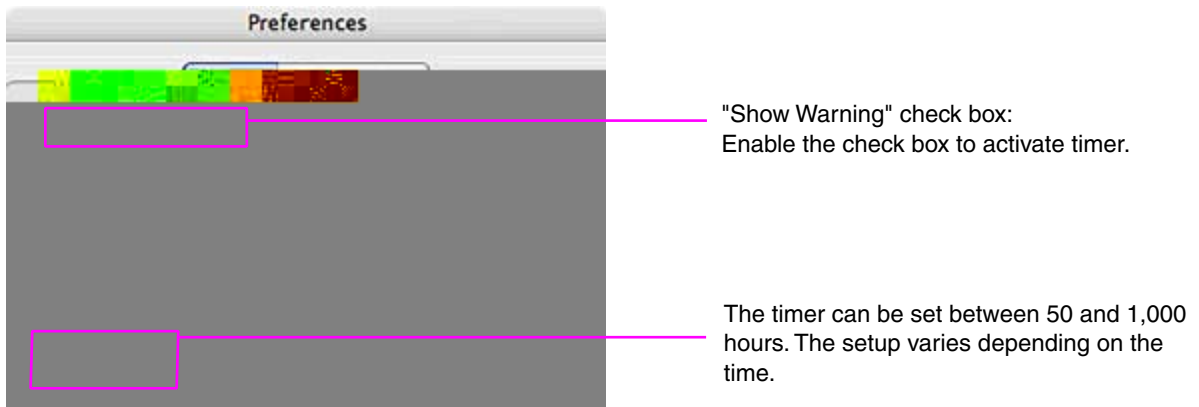
## Macintosh

Mac OS X: Click [Application menu]-[Preferences...] to open the timer setup window.

Mac OS 9: Click [Apple Menu]-[Preferences...] to open the timer setup window.

## Windows

Click the ColorNavigator icon on the title bar and select "Preferences"-"Timer" tab to open the timer setup window



The timer can be set between 50 and 1,000 hours. The setup varies depending on the time.

Time	Setup
50-100 hrs	every 10 hr
100-200 hrs	every 20 hr
200-500 hrs	every 50 hr
500-1000 hrs	every 100 hr

Click [OK] after setting the time.

---

# 4. Loading/Setting the adjustment result

## 4-1. Flow Diagram

---

The software flow, if choosing [Adjust the monitor with the past adjustment result.] on the startup window, is shown below.

---

**NOTE**

- To proceed this function, calibrate or emulate a monitor and generate at least one profile in advance.
- 



\* Select "Adjust the monitor with the past adjustment r



---

## 4-2. Switching the adjustment result

---

It is described based on the fact that one monitor is connected to computer. To calibrate/emulate several monitors in a multiple monitor environment, refer to "7. USING COLORNAVIGATOR WITH MULTIPLE MONITOR ENVIRONMENT".

### **1 Startup ColorNavigator**

#### **Macintosh**

Mac OS X :

Double click "ColorNavigator" icon in the "Application" - "Utilities".

Mac OS 9 :

Double click "ColorNavigator" icon in the specified folder - "ColorNavigator".

#### **Windows**

Double click the "Shortcut to ColorNavigator" icon on the desktop.

Quit other applications before starting up the ColorNavigator.

Disable the screen saver so it will not be activated during adjustment or measurement.

---

#### **NOTE**

- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.
- 

### **2 Select a measurement device**

Select the proper measurement device for using ColorNavigator then click [OK].

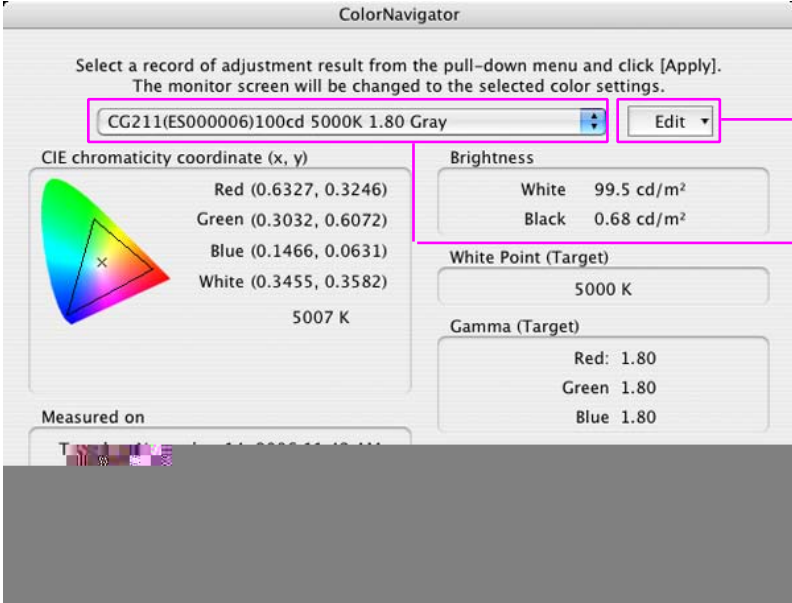
### **3 Select a function**

When starting up ColorNavigator, the startup window will appear.

Select "Adjust the monitor with the past adjustment record.".

## 4 Choose an adjustment result

According to the software instructions, choose an adjustment result from the pull-down menu.



The screenshot shows the ColorNavigator software interface. At the top, it says "Select a record of adjustment result from the pull-down menu and click [Apply]. The monitor screen will be changed to the selected color settings." Below this is a pull-down menu showing "CG211(ES000006)100cd 5000K 1.80 Gray" and an "Edit" button. To the left is a CIE chromaticity coordinate (x, y) diagram with a color triangle and a point 'x'. Below the diagram are the coordinates for Red, Green, Blue, and White, and the temperature "5007 K". To the right are sections for "Brightness" (White: 99.5 cd/m<sup>2</sup>, Black: 0.68 cd/m<sup>2</sup>), "White Point (Target)" (5000 K), and "Gamma (Target)" (Red: 1.80, Green: 1.80, Blue: 1.80). A "Measured on" section is partially visible at the bottom. Two pink callout boxes point to the "Edit" button and the "Brightness" section.

Edit the adjustment result. Refer to 4-3. Editing the Adjustment Result

The history of adjustment result.

## 5 Configure the monitor

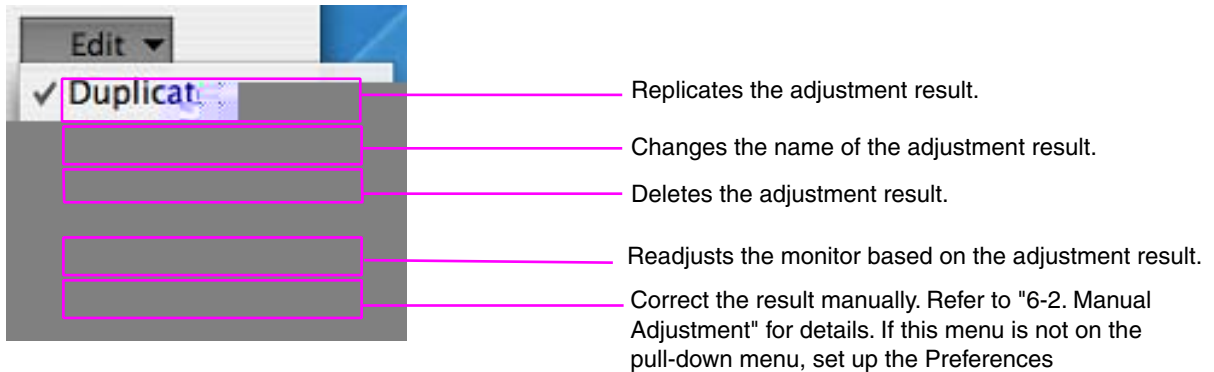
Click [Apply] to change the monitor color settings based on the selected adjustment result. A message will appear if the configuration is completed.

### Tips

- This function is executed by a previous adjustment result and its associated color profile. Once clicking [Apply], the software compares the configuration with the existing profile and automatically revises the profile if its parameter differs from the adjustment result.

## 4-3. Editing the Adjustment Result

The adjustment result can be edited.



### Tips

- ColorNavigator can store up to twenty (20) calibration and twenty (20) emulation records. If the storage area of ColorNavigator is full and calibrates or emulates the monitor more, the following message will appear.  
If the message appears, clean up the calibration/emulation results by deleting unnecessary data from the pull-down menu.

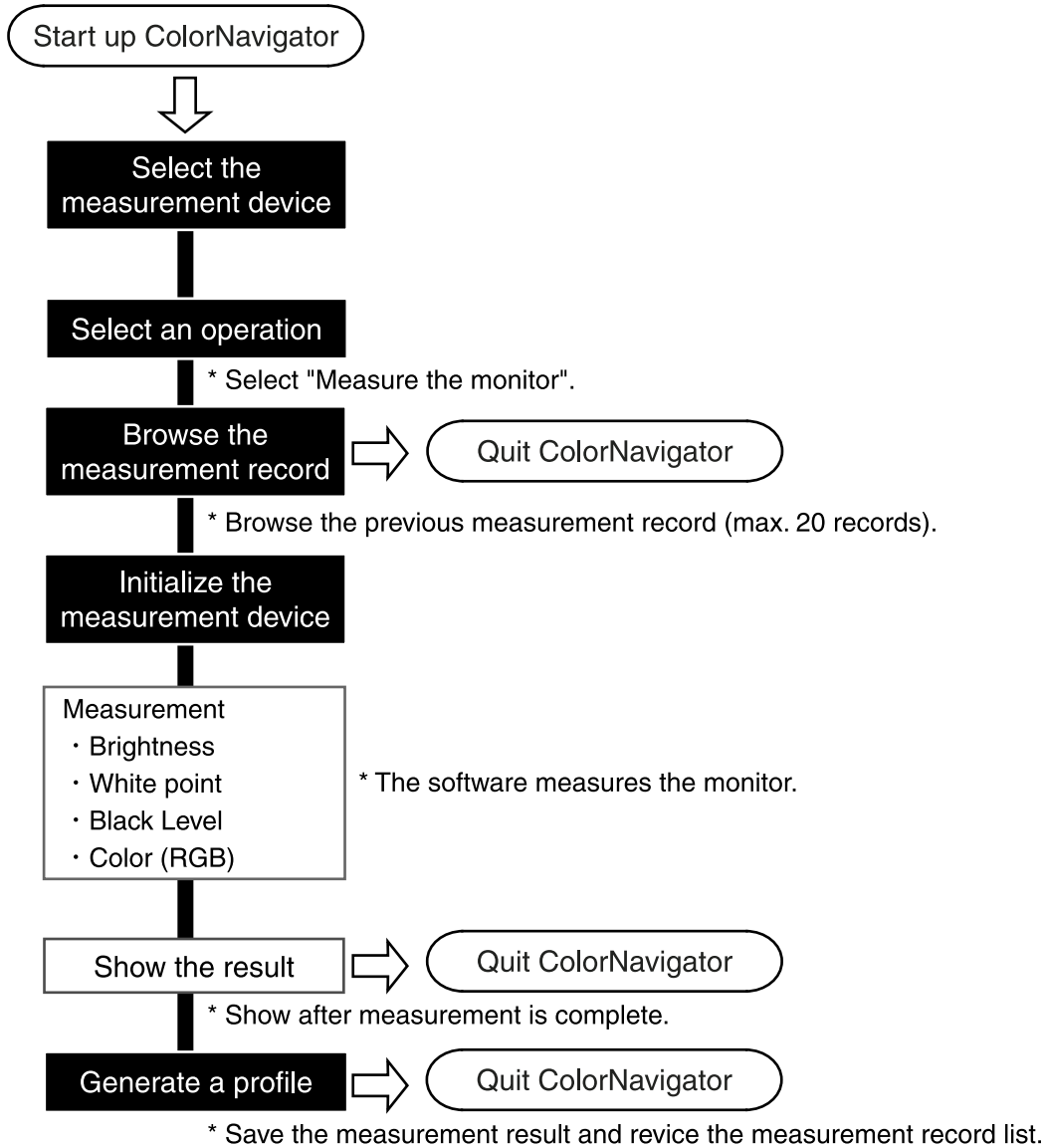
### NOTE

- The pull-down menu has a list of the adjustment result of monitors with the window open. Click "Emulate the monitor adjustment and generates a profile." to adjust the monitor based on the adjustment result and profile of other monitors.

# 5. Measurement a monitor

## 5-1. Flow Diagram

The software flow, if choosing [Measure the monitor] on the startup window, is shown below.



## 5-2. Measurement procedure

It is described based on the fact that one monitor is connected to Macintosh. To measure several monitors in a multiple monitor environment, refer to "7. USING COLORNAVIGATOR WITH MULTIPLE MONITOR ENVIRONMENT".

### Setup ColorNavigator

#### 1 Turn on both the monitor and the computer 30 minutes before emulation (= warming up)

Disable the power managing function of them so they will not be in the power-save mode.

Quit the other applications before starting up the ColorNavigator.

Disable the screen saver so it will not be activated during adjustment or measurement.

#### NOTE

- To obtain precise emulation results, the monitor and computer must be sufficiently warmed-up. Once the monitor goes in the power-save mode, it takes a while for the brightness and color conditions to re-stabilize.

#### 2 Set the display resolution and colors

Set the monitor color at thousands or more [millions (24 bit) or more recommended].

1024 x 768 or higher is recommended.

### Startup ColorNavigator

#### 1 Startup ColorNavigator

##### Macintosh

Mac OS X :

Double click "ColorNavigator" icon in the "Application" - "Utilities".

Mac OS 9 :

Double click "ColorNavigator" icon in the specified folder - "ColorNavigator".

##### Windows

Double click the "Shortcut to ColorNavigator" icon on the desktop.

#### NOTE

- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.

**2 Select a measurement device**

Select the proper measurement device for using ColorNavigator then click [OK].

**3 Select a function**

When starting up ColorNavigator, the startup window will appear. Select "Adjust the monitor with the past adjustment record."

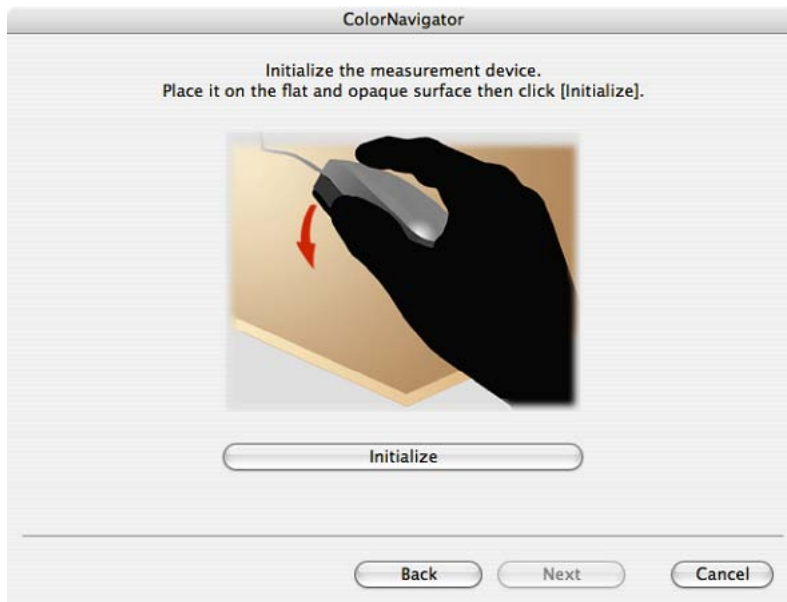
**4 The measurement record list window will appear**

Up to twenty (20) measurement result are listed in it.



**5 Initialize the measurement device**

Initialize the measurement device according to the instructions.



Initialization takes a few seconds.



**NOTE**

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise calibration results cannot be obtained if light is detected during the initialization process.
  - When ColorVision Spyder2 connected to the computer, this window will be skipped.
- 

**6 Proceed monitor measurement**

The measurement window appears on the screen.

Proceed with measurement in accordance with the instruction.

ColorNavigator sequentially shows some patterns for measuring the monitor. Measurement takes approximately one minute.

**7 Confirm the result and store it to ColorNavigator as a measurement record**

When the measurement has been completed, the result window will appear.

## 5-3. Deleting a measurement result

---

ColorNavigator can store up to twenty (20) measurement results. The oldest measurement result will automatically be replaced with new one if the storage area of ColorNavigator is full.

To delete unnecessary measurement result manually, refer to the instructions as below.

### **Procedure**

#### **1 Select a measurement record to delete**

Select unnecessary measurement result from the measurement history list.

#### **2 Delete the measurement record**

Click [Delete] to delete the measurement result.

Repeat the process 1 and 2, if deleting several measurement results.

## 6. Advanced functions (Target measurement / Manual adjustment)

### 6-1. Ambient Light Measurement / Paper White Measurement

Some measurement devices can set the measurement results below for the target value on the calibration / emulation window.

- Ambient light is measured and set to be the target coordinates of a white point.
- White point and the brightness of the paper (paper white) are measured and set to be the target value of a white point and the target brightness.

#### Procedure for Measuring Ambient Light

##### NOTE

- The following measurement device enables ambient light measurement.

- Eye-One Pro
- Eye-One Display2
- Eye-One Display LT\*<sup>1</sup>

\*1: Supporting Mac OS X 10.3.9 or later / Windows 2000 / Windows XP

#### 1 Click [Measure the target...] on the calibration window

#### 2 Initialize the measurement device

The initialization window of the measurement device will open. Click [Initialize...]. Initialize the measurement device according to the instructions.

Initialization takes a few seconds.



##### NOTE

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise calibration results cannot be obtained if light is detected during the initialization process.

The ambient light measurement window will open.

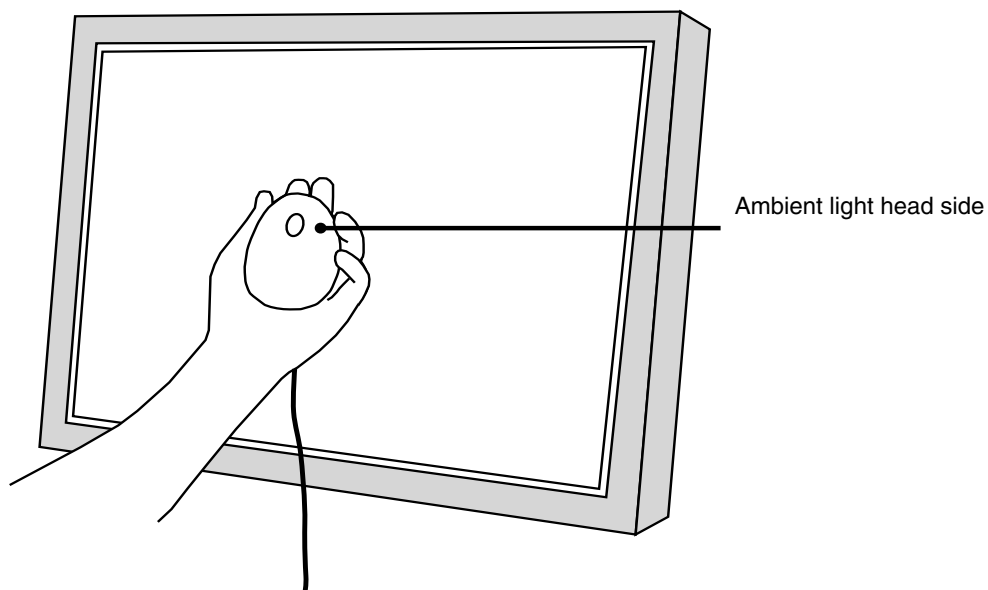


**3 Attach the ambient light head to the measurement device**

About attaching, refer to the user's manual of the measurement device.

**4 Measure the ambient light**

Hold the measurement device as below, with keeping ambient light head side towards outside.  
Move it under the ambient light to be measured, and click [Measure].



After the measurement, click [OK]. The measured value is set as the target white of the configuration window.

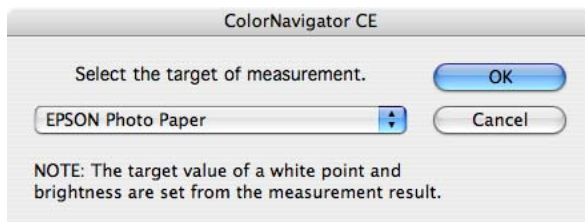
## Procedure for Measuring Paper White

The target value of a white point and the target brightness can be set by measuring the light that is reflected from the paper.

### NOTE

- The following measurement device enables paper white measurement  
- X-RiteOPTIX<sup>XR</sup>/DTP94/X-RiteOPTIX<sup>XR2</sup>/DTP94B

- 1 Click [Measure the target...] on the configuration window
- 2 Select "EPSON Photo paper" on the mode selection window



- 3 Initialize the measurement device

The initialization window of the measurement device will open. Click [Initialize...]. Initialize the measurement device according to the instructions.

Initialization takes a few seconds.



### NOTE

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise calibration results cannot be obtained if light is detected during the initialization process.

The paper white measurement window will open.

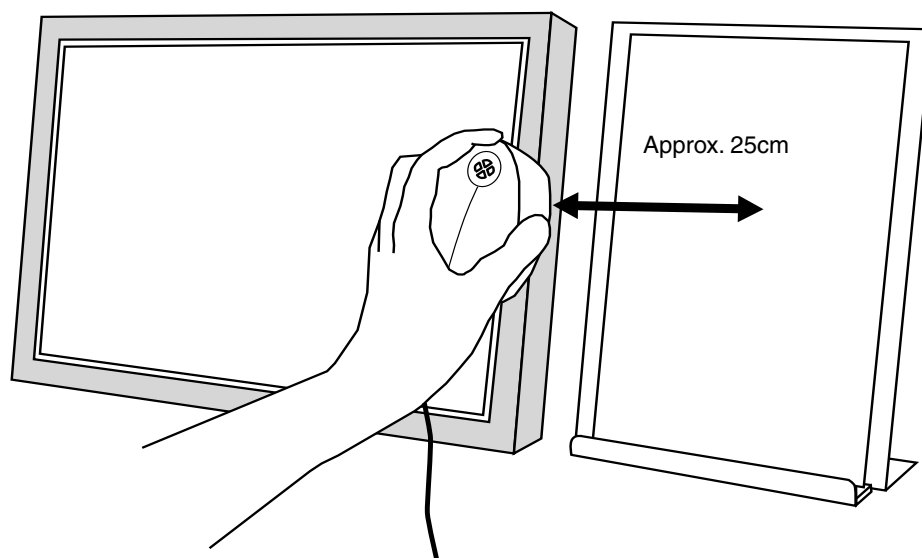


#### 4 Measure the paper white

Hold the measurement device as below, with keeping the sensor towards the paper.

Move it approximately 25 cm away from the paper and maintain it parallel to the paper and click [Measure].

The use of the photo stands is recommended so that the paper should not move.



After the measurement, click [OK]. The measured value is set as the target brightness and white of the configuration window.

**NOTE**

- In the paper white measurement, not only a white point but also brightness is measured to be reflected in the target value.
- The target value of brightness is set by  $5\text{cd/m}^2$ , based on the rounded-up measurement value. ex.) measured brightness :  $80.1\text{ cd/m}^2 \rightarrow 85\text{ cd/m}^2$
- If the measurement value of brightness is under  $80\text{ cd/m}^2$ , the target value of brightness is automatically set  $80\text{ cd/m}^2$ .

## 6-2. Manual adjustment

After completing calibration, the white point, brightness, gamma, the hue and saturation of those 6 colors (red/green/blue/cyan/magenta/yellow) can be adjusted manually.

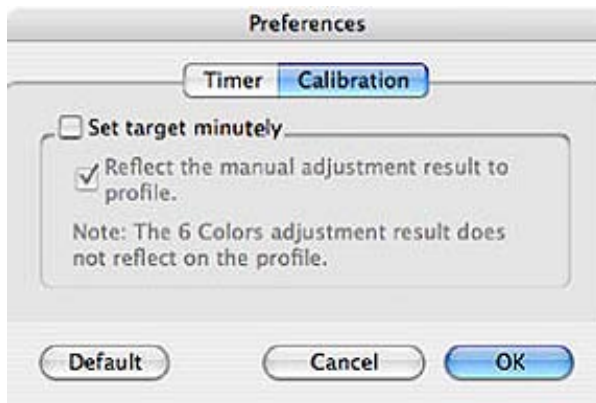
**NOTE**

However, note the following when adjusting the 6 Colors.

- Adjusting the 6 Colors makes difference in the color between images and print less noticeable and does not correct the colors. The color management settings of each device may not be appropriate when the color of the monitor image is noticeably different from that of the print.
- The results of any adjustment to the 6 Colors will be saved in the ColorNavigator as adjustment data. The result of the 6 colors adjustment does not reflect the profile made after calibration.

**Tips**

- If not let the result of manual adjustment reflect to the profile, disable "Reflect the manual adjustment result to profile" check box of [Preferences...]-[Calibration] tab.



Show [Preferences...] menu by the following method

**Macintosh**

Mac OS X: Click [Application menu]-[Preferences...] to open the timer setup window.

Mac OS 9: Click [Apple Menu]-[Preferences...] to open the timer setup window.

**Windows**

Click the ColorNavigator icon on the title bar and select "Preferences"-"Timer" tab to open the timer setup window

## Procedure

### 1 Open the manual adjustment palette

Click [Manual Adjustment] on the adjustment result window.

The manual adjustment palette will open.

Each tab of the manual adjustment palette will be changed and adjusted.

[All] includes all adjustment items.

The screenshot shows the 'Manual Adjustment' window with the following sections and annotations:

- White Balance:** Adjust the gain of Red/Green/Blue to adjust the white balance. (Annotations point to R, G, and B gain controls).
- Brightness:** Correct the brightness. (Annotation points to the brightness slider).
- Black Level:** Correct the black level. (Annotation points to the black level slider).
- Gamma:** Set the monitor gamma. About L\*, the selectable gamma value, refer to "About ColorNavigator". (Annotation points to the gamma sliders for R, G, and B).
- 6 Colors:** Change the hue and saturation of 6 colors. (Annotations point to the Hue and Saturation sliders for R, G, B, C, M, and Y).
- Reset:** Go back to the stage before it was adjusted manually. (Annotation points to the Reset button).
- Pattern Display:** Show pattern display screen. (Annotation points to the pattern display area at the bottom).

Color	Slide bar to the left	Slide bar to the right
R	to magenta	to yellow
G	to yellow	to cyan
B	to cyan	to magenta
C	to green	to blue
M	to blue	to red
Y	to red	to green



**Tips**

- The manual adjustment palette can move and can be adjusted with the image.
  - The numbers displayed on the left of the white point, brightness, black level are references.
- 

**NOTE**

- The monitor gamma adjustment varies depending on a device.
  - The profile does not reflect the result of the 6 Colors function.
  - If 6 colors adjustment is performed on either CG18, CG19 or CG21, white point and brightness may be available in manual adjustment.
- 

## **2 Measure the monitor**

After adjusting manually, click [OK] of the manual adjustment palette.

The manual adjustment palette will close and the measurement window will appear.

Follow the window instructions to measure the monitor.

---

**NOTE**

- The measurement window will not appear when adjusting only 6 colors. The adjustment result window will appear
- 

## **3 Confirm the result and generate a profile**

When the measurement has been completed, the adjustment result window will appear. Confirm the measurement result and click [Save] to generate a profile.

## 7. USING COLORNAVIGATOR WITH MULTIPLE MONITOR ENVIRONMENT

The ColorNavigator also has a capability to calibrate/emulate the system which several monitors are connected to a computer. Select a monitor to run the software while starting up ColorNavigator.

### NOTE

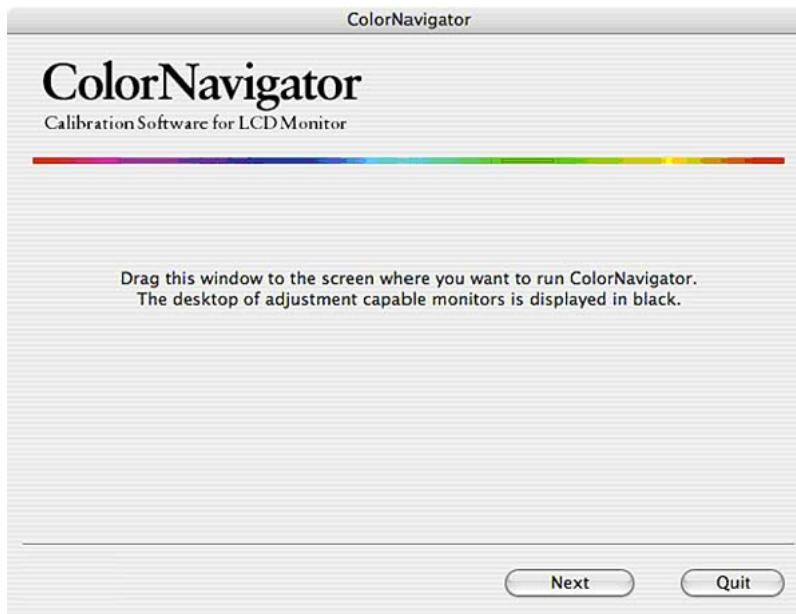
- The functions such as calibration and generating a profile are only available on the ColorEdge CG series monitors.

### Startup ColorNavigator with multiple monitor environment

#### 1 Select a monitor

The software shows the following window for running ColorNavigator.

Move the software window to the screen of the monitor you want to calibrate and go on to the next step.



**Tips**

- The following window appears, if you connect same type of several monitors in Mac OS 9.



## 2 Calibrate the monitor

Select a function on the startup window. The process for each function is the same as a single monitor environment.

**NOTE**

- Some selected monitors to activate ColorNavigator may limit the functions on the startup window..

## 3 Run ColorNavigator on the next monitor(s)

When calibration has been completed, a completion message will appear. Press [Return to the start up window] and repeat the process for the second monitor.

## 8. ERROR MESSAGE LIST

Find the following description if a message appears while running Color Navigator.

Problems	Points to check / Description
<b>Initialization Error:</b>	
<b>&lt;Macintosh&gt;</b> <ul style="list-style-type: none"> <li>•Mac OS X 10.2 or later/MacOS 9.2.2 is required for starting up ColorNavigator.</li> <li>•Set monitor color to thousands or more (millions recommended) to start up ColorNavigator.</li> </ul> <b>&lt;Windows&gt;</b> <ul style="list-style-type: none"> <li>•Windows 2000/XP or later is required for starting up ColorNavigator.</li> <li>•Set monitor color to 16 bit or more (24bit or more recommended) to start up ColorNavigator.</li> </ul>	<input type="checkbox"/> Check the system requirements ofColorNavigator. Refer to "1-1. System Requirements".
<ul style="list-style-type: none"> <li>•Failed to detect monitor and measurement device. Quit the software, reconnect USB cable to both monitor and measurement device, then restart the software.</li> <li>•The adjustment-capable monitor cannot be found. The monitor cannot be adjusting with the current status.</li> <li>•ColorNavigator cannot adjust this monitor.</li> </ul>	<input type="checkbox"/> Open the "System Profiler" and confirmthat all the devices, that are necessary to start up ColorNavigator, are detected. <input type="checkbox"/> Check the USB connection of the monitor and measurement device. <input type="checkbox"/> Check if the ColorEdge CE series monitor is connected.
<ul style="list-style-type: none"> <li>•Check the measurement device is placed on the white ceramic tile of base plate firmly then click [Initialize].</li> <li>•Check the measurement device is placed on the flat and opaque surface then click [Initialize].</li> </ul>	<input type="checkbox"/> Check whether the measurement device is placed on the base plate or not.
<b>Measurement Error / Adjustment Error/File Error:</b>	
<ul style="list-style-type: none"> <li>•Select another white balance, or retry [Proceed].</li> </ul>	<input type="checkbox"/> Check the color coordinates that arebetween 0.24 and 0.45 for x-coordinate, and between 0.24 and 0.45 for ycoordinate.
<ul style="list-style-type: none"> <li>•Check the measurement device firmly attached to the measurement window, and then click [Proceed].</li> </ul>	<input type="checkbox"/> Attach the measurement device to the measurement window firmly.
<ul style="list-style-type: none"> <li>•Avoid operating any functions of the monitor while saving the profile is in progress. Retry adjustment.</li> <li>•Avoid operating any functions of the monitor while measuring the monitor in progress. Retry adjustment.</li> <li>•Avoid operating any functions of the monitor while adjusting the monitor manually. Retry adjustment.</li> <li>•Avoid operating any functions of the monitor while the adjustment result selection window is displayed. Start the operation over again.</li> </ul>	<input type="checkbox"/> If operating the monitor while ColorNavigator is in active, the software operation may end in failure.
<ul style="list-style-type: none"> <li>•Failed to generate a profile. Retry [Save].</li> </ul>	<input type="checkbox"/> It cannot be generated a profile if the file name including "/". Rename and retry save.
<b>Communication Error:</b>	
<ul style="list-style-type: none"> <li>•Restart the software and retry operation.</li> </ul>	<input type="checkbox"/> Check if the USB cable of the monitor and measurement device is connected. Avoid disconnecting the USB cable while calibrating.
<b>Alert:(Windows)</b>	
<ul style="list-style-type: none"> <li>•You must be an administrator to install ColorNavigator.</li> </ul>	<input type="checkbox"/> Check whether you are an administrator.
<ul style="list-style-type: none"> <li>•ColorNavigator is disabled by your system administrator. You must be an administrator to run this software.</li> </ul>	<input type="checkbox"/> The status of user account can be checked through "Start" - "Control Panel".

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