



Spyder[™] with PhotoCAL[™]

User Guide

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Spyder™ with PhotoCAL™

User Guide

Before You Start

- 1) Disable any anti-virus software you have installed on your system. After you have installed the product, you may re-enable the anti-virus software.
- 2) Make sure that you do NOT plug the Spyder into the computer before installation.
- 3) Video Card Support: Most video cards that were made within the last two years should be compatible with the PhotoCAL software. To be absolutely sure, we have a test program called OptiCheck that you can download and run to test the video card on your system. OptiCheck can be downloaded from the software download pages of either the ColorVision (www.colorcal.com) or Pantone (www.pantone.com) Web sites.

Many manufacturers' video cards support PhotoCAL for Windows 98, 98SE, ME, 2000 and XP. These include ATI (not including All-In-Wonder cards), Matrox, GeForce, Nvidia, plus many others that are not listed here.

Multiple monitors **are** supported on Macintosh systems. Multiple monitors **are not** supported on Windows systems. If you have multiple monitors on a Windows system, either by using a Dual Head video card or by using multiple video cards, only the primary monitor will be calibrated and profiled.

In Windows, verify that you have set your Hardware Acceleration to Full. This can be found in the Setting->Advanced->Performance tab.

- 4) The recommended minimum setting that the display resolution can be set to is 640 x 480
- 5) The recommended minimum number of colors that the display can be set to is 16 million colors (24-bit Color).
- 6) Adaptec and Roxio CD Burning software should be disabled when calibrating.
- 7) The Spyder should only be plugged into the USB port located at the back of the computer, not into a USB hub or keyboard. It is preferred that the Spyder be plugged into a separate PCI USB card built with the Lucent chipset rather than into USB ports built into the motherboard. Combination USB/FireWire cards may not work.

- 8) If you have a graphics tablet or any other USB device (mouse, web cam, digital camera), please unplug it during all calibrations with the Spyder.
- 9) If you are running Windows 2000, please make sure you are logged on as Administrator or a user with FULL Administrator privileges.
- 10) Make sure that Adobe Gamma Loader.exe and/or any third party calibrating software is not in your startup folder.
- 11) For Windows users, download the latest drivers for your video card and monitor from their manufacturer's Web site then update each.
- 12) You should know how to change the color settings using your monitor's on-screen controls. You need to know how to adjust the color temperature, contrast and brightness settings, and how to reset the monitor to its factory defaults. If you are not familiar with how your monitor works, please read the manual for the monitor before you start to calibrate with the PhotoCAL software.
- 13) Please turn off all desk lamps and close blinds to minimize ambient light. If there is overhead lighting, try to shield the screen using a hood or turn the lights off. There should be no light source shining directly on the screen.
- 14) For LCD monitors, please make sure that the triangular honeycombed baffle is attached to the bottom of the Spyder. Place it on the monitor using the "A" shaped Spyder attachment.



CRT/LCD Spyder with
LCD baffle and hanger
attached

- 15) For CRT monitors, the round rubber baffle should be attached to the Spyder. CRT/LCD Spyders are shipped with the LCD triangular baffle attached. If you have a CRT monitor please make sure you pull off the triangular baffle and attach the round rubber one. If you have the wrong baffle on the Spyder for your type of monitor, the Spyder will give false readings, the program may display errors, and the suction cups may damage the LCD screen if the triangular baffle is not attached.



CRT/LCD Spyder with
CRT baffle attached

- 16) If you have a 21-inch Apple Studio Display CRT, please see Appendix I.
- 17) During the calibration process, do not move the PhotoCAL™ window. It is placed in an ideal position to read colors from the RGB guns of your monitor. If you are changing the settings of your monitor, please wait until after the monitor's on-screen control window disappears to make readings with the Spyder.
- 18) During the calibration process, please do not remove the Spyder from the screen until prompted to do so.
- 19) When not using the Spyder, please store it in the original box.

PhotoCAL Installation Instructions

For Windows:

- 1) If you are running Windows XP, please see Appendix II.
- 2) Double-click on the "PhotoCAL Installer."
- 3) Click the "Next" button in the first two windows.

- 4) Make sure that the Spyder/sensor is not plugged in. Click "Next."
- 5) Click "Yes" in the License Agreement window.
- 6) Enter your information and serial number that was included in your software box/invoice. Please remember to include the dashes in the serial number.
- 7) Click "Next" in the Destination Directory window.
- 8) Click "Next" in the Program Folder window.
- 9) Click "Next" in the Install Files window.
- 10) Click "Next" in the Last Minute Notes window.
- 11) Click "Yes" to reboot.
- 12) Please wait to plug-in the Spyder/sensor until the computer has fully restarted. After you plug it in, Windows will build a database for the new hardware.

For Macintosh:

- 1) Make sure that the Spyder is not plugged in.
- 2) Double-click on the "PhotoCAL Installer."
- 3) Click "Continue."
- 4) Click "Accept" in the Terms and Conditions window.
- 5) Click the "right arrow" to continue after reading the READ ME
- 6) In the Installer window, Click "Install".
- 7) Dialogue Box will pop up: The software was successfully installed. Click "Quit."

Using PhotoCAL

For CRT monitors:

- a) To start PhotoCAL:
Double-click the "PhotoCAL icon" on your desktop in Windows.
On a Mac, click on the "Apple->Control Panels->Monitor" (or Monitor and Sounds). Click on the "Color" button. Click on the "Calibrate" button. Click on "PhotoCAL." Click "OK." Note that different instructions will be needed for OS X.
- b) After reading the Introduction window, click "Next."
- c) Select CRT for the type of monitor you have, click "Next."
- d) Choose the Gamma to which you would like to calibrate. 1.8 is the standard for Mac and 2.2 is the standard for a PC. If you are not sure which to choose, select 2.2. Click "Next."
- e) Select the Color Temperature to which you would like to calibrate. 5000 is the traditional standard for print. 6500 is the preferred standard for PCs and digital imaging. If you are not sure which to choose, select 6500. Click "Next."
- f) Set the contrast control on the monitor to its maximum setting. Click "Next."
- g) Set the brightness control on the monitor so that you see a very slight difference between the two left boxes. An easy way to tell if the setting is correct is to look at a white wall then look back at the two left squares. If it takes 2-3 seconds to see the difference, then the setting is correct. Click "Next."

For CRT Monitors with Presets:

- a) Identify Display Controls: choose **Has presets**. Click "Next."
- b) This window will ask you to set the monitor's color temperature. Confirm the change you made before you start calibrating. Click "Next."
- c) Attach the Spyder onto the screen so that it covers the picture of the Spyder in the window. Click "Next."
- d) Adjust the white luminance by adjusting the contrast control on the monitor. Remember to wait about 10 seconds after the monitor's on-screen controls disappear before clicking the Update button to make a new luminance measurement. Keep adjusting the contrast control and clicking Update until it measures an optimum reading. Click "Next."
- e) Now it will take measurements. Remove the Spyder from the screen when prompted. Click "Next."

- f) Name the profile. On Windows make sure that your name does not include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars.
- g) Click "OK."
- h) After reading the final instructions, click "Finish."

For CRT Monitors with No Color Controls:

- a) Identify Display Controls: choose ***Has no color controls***. Click "Next."
- b) Attach the Spyder onto the screen so that it covers the picture of the Spyder in the window. Click "Next."
- c) The Spyder will now measure luminance. Adjust the white luminance by adjusting the contrast control on the monitor. Remember to wait about 10 seconds after the monitor's on-screen controls disappear before clicking the "Update" button to make a new luminance measurement. Keep adjusting the contrast control and clicking Update until it measures an optimum reading. Click "Next."
- d) The Spyder will take measurements.
- e) Remove the Spyder when prompted. Click Next.
- f) Name the profile. On Windows, do not include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars in the name. Click "Next."
- g) Click "OK."
- h) After reading the final instructions, click "Finish."

For CRT monitors with RGB Controls:

- a) Identify Display Controls: choose ***Has RGB controls***. Click "Next."
- b) Attach the Spyder onto the screen so that it covers the picture of the Spyder in the window. Click "Next."
- c) Luminance - Instructions Window: If the monitor has a higher luminance value than 95, reduce all three RGB guns an equal amount. Make sure the monitor's on-screen controls disappear before clicking Update. Click "Update." If the monitor has a lower luminance value than 85, increase all three RGB guns an equal amount. Make sure that the monitor's on-screen controls disappear before clicking Update. Click "Update."
- d) Adjust Monitor Temperature – Instruction Window: Monitor's on-screen controls needs to be hidden when PhotoCAL takes readings. For best results, bring up the on-screen controls and adjust the RGB levels. Then, hide the on-screen controls. Take reading again. Repeat until the luminance value is between 85 and 95 and the difference is below .50.

- e) Adjust color temperature. Adjust the RGB guns until the tops of the three bars are equally inside the rectangular box with a difference of .50. The recommended luminance value is between 85 and 95. If the luminance is greater than 95, then lower the three RGB guns the same amount. If the luminance is less than 85, then raise the three RGB guns the same amount. Keep in mind that even lowering or raising the RGB gun level a small amount will affect the luminance value. Click "Update" after each adjustment so that PhotoCAL will take another reading. When your values are acceptable, click "Next."
- f) The Spyder will take readings.
- g) Remove the Spyder when prompted. Click "Next."
- h) Name the profile, but, on Windows, keep in mind not to include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars. Click "Next."
- i) Click "OK."
- j) After reading the final instructions, click "Finish."

For LCD monitors:

- a) To start PhotoCAL:

Double-click the "PhotoCAL icon" on your desktop in Windows.

On a Mac, click on the "Apple->Control Panels->Monitor" (or Monitor and Sounds). Click on the "Color" button. Click on the "Calibrate" button. Click on "PhotoCAL." Click "OK." Again, this route will differ in OS X, which we will soon be supporting.

- b) After reading the Introduction window, click "Next."
- c) Select LCD for the type of monitor that you have. Click "Next."
- d) Choose the Gamma to which you would like to calibrate. 1.8 is the standard for Mac and 2.2 is the standard for a PC. If you are not sure which to choose, select 2.2. Click "Next."
- e) Select the Color Temperature to which you would like to calibrate. 5000 is the traditional standard for print. 6500 is the preferred standard for PCs and digital imaging. If you are not sure which to choose, select 6500. Click "Next."
- f) Reset your monitor to its factory default settings for Brightness and Contrast.

For LCD Monitors with Presets:

- a) Identify Display Controls: choose **Has presets**. Click “Next.”
- b) This window will ask you to set the monitor’s color temperature. Confirm the change you made before you start calibrating. Click “Next.”
- c) The photograph shown earlier in the Guidelines section of this document shows the LCD baffle and hanger. The triangular baffle must be on the Spyder. The hanger needs to be clipped onto the top of the Spyder to suspend the Spyder from the display. Never fasten the Spyder with the suction cups. It could damage the LCD screen. Click “Next.”
- d) Hang the Spyder via the hanger and make sure that the Spyder is right on top of the Spyder in the picture and resting flat on the screen. If necessary, lean the monitor back and/or adjust the USB cable so that the Spyder lays flat on the screen. Click “Next.”
- e) The Spyder will now initialize and take measurements.
- f) Remove the Spyder when prompted. Click “Next.”
- g) Name the profile. On Windows, make sure that your name does not include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars.
- h) Click “OK.”
- i) After reading the final instructions, click “Finish.”

For LCD Monitors with No Color Controls:

- a) Identify Display Controls: choose **Has no color controls**. Click “Next.”
- b) The photograph shown earlier in the Guidelines section of this document shows the LCD baffle and hanger. The triangular baffle must be on the Spyder. The hanger needs to be clipped onto the top of the Spyder to suspend the Spyder from the display. Never fasten the Spyder with the suction cups. It could damage the LCD screen. Click “Next.”
- c) Hang the Spyder via the hanger and make sure that the Spyder is right on top of the Spyder in the picture and resting flat on the screen. If necessary, lean the monitor back and/or adjust the USB cable so that the Spyder lays flat on the screen. Click “Next.”
- d) The Spyder will now initialize and take measurements.
- e) Remove the Spyder when prompted. Click “Next.”
- f) Name the profile. On Windows, make sure that your name does not include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars.
- g) Click “OK.”

- h) After reading the final instructions, click “Finish.”

For LCD monitors with RGB Controls:

- a) Identify Display Controls: choose ***Has RGB controls***. Click “Next.”
- b) The photograph shown earlier in the Guidelines section of this document shows the LCD baffle and hanger. The triangular baffle must be on the Spyder. The hanger needs to be clipped onto the top of the Spyder to suspend the Spyder from the display. Never fasten the Spyder with the suction cups. It could damage the LCD screen. Click “Next.”
- c) Hang the Spyder via the hanger and make sure that the Spyder is right on top of the Spyder in the picture and resting flat on the screen. If necessary, lean the monitor back and/or adjust the USB cable so that the Spyder lays flat on the screen. Click “Next.”
- d) The Spyder will now initialize and take measurements.
- e) Read the Instructions explaining how to adjust the RGB gain controls. Click “Next.”
- f) Adjust the monitor’s RGB gain controls. You want the three color bars in the rectangular box as close to each other as possible. The luminance value for an LCD monitor can be anywhere from 150 to 300 or more, with a difference of 1.0. After you make adjustments, click “Update” so that the Spyder can take another reading. When your monitor obtains optimum luminance, click “Continue.”
- g) The Spyder will now initialize and take measurements.
- h) Remove the Spyder when prompted. Click “Next.”
- i) Name the profile. On Windows make sure that your name does not include slashes, backslashes, colons, asterisks, question marks, double quotes, less than symbols, greater than symbols or vertical bars.
- j) Click “OK.”
- k) After reading the final instructions, click “Finish.”

Appendix I:

Calibrating a 21-inch Apple Studio Display CRT

If you are using PhotoCAL with the Apple Studio Display, you cannot use PreCAL. Instead you can use the Calibration feature available in the Monitors & Sound control panel with this monitor. Please use the following steps for calibrating the Apple Studio display with PhotoCAL.

- 1) Ensure that both the USB and Video connectors from the monitor are plugged into the computer.
- 2) Press the "ColorSync" button on the monitor to open the Monitors & Sound Control Panel.
- 3) Set Contrast to maximum.
- 4) Set Brightness to 50%.
- 5) Click the "Color" button at the upper right of the Monitors & Sound Control Panel.
- 6) Set the White Point menu to the color temperature you will be using in PhotoCAL.
- 7) Set the Gamma menu to the gamma value you will be using in PhotoCAL.
- 8) Select "None" from the Ambient Light menu.
- 9) Click "Preferences."
- 10) Set Calibration Accuracy to "Pro."
- 11) Click "OK."
- 12) Click "Re-calibrate."

After ColorSync has calibrated the monitor then run PhotoCAL.

- 1) Do not change to the Contrast level, even if the program recommends doing so. Skip those steps.
- 2) Do not change the Brightness level, even if the program recommends doing so. Skip those steps.

Appendix II:

Installing PhotoCAL under Windows XP.

Please make sure that the Spyder is disconnected from the system during uninstallation and installation.

Uninstall the existing version of PhotoCAL. To do this, left-click on "Start-> Control Panel." Under "Pick a Category" left-click on the "Add or Remove Programs" link. Click on "PhotoCAL" and click on the "Change/Remove" button. A dialogue box will appear asking if you want to completely remove the selected application and all of its components, click "Yes." The application files will now be removed. Click "OK." Click "Close."

To install PhotoCAL, please follow these steps:

- 1) Double-click on the "PhotoCAL" Installer.
- 2) Click "Next" in the first two windows.
- 3) Make sure that the Spyder is not plugged in. Click 'Next.'
- 4) Click "Yes" in the Agreement window.
- 5) Enter your information and serial number that was included in your software box/invoice. Please remember to include the dashes in the serial number.
- 6) Click "Next" in Destination Directory window.
- 7) Click "Next" in Program Folder window.
- 8) Click "Next" in install files window.
- 9) Click "Next" in Last Minute Notes window.
- 10) Click "Yes" to reboot.
- 11) Please wait to plug the Spyder in until the computer has fully restarted.

Connect the Spyder to the USB port on the back of your system. Please follow the below directions to install the Spyder driver.

Installing the Spyder driver on Windows XP:


Procedure 1:

- 1) Connect the Spyder and the “Found New Hardware Wizard” dialogue box will appear. Note: If the wizard does not auto-execute, please see **Procedure 2** for further Instructions.
- 2) Leave the default setting of “Install the software automatically” and click on “Next” to continue
- 3) The “Insert Disk” dialogue box will appear which asks for you to insert the PANTONE ColorVision PhotoCAL CD into your CD-ROM drive. Click “OK” to continue after you have inserted the disk.
- 4) The “Files Needed” dialogue box will appear which asks you to choose the driver file.
- 5) Then Click on “Browse” to select the driver file cvspydr.sys or cvspydr2.sys located in <system drive> \WINDOWS\system32\drivers. Choose the driver file and click “OK” to continue.
- 6) Then the “Finish” dialog box will appear saying that it has found the New Hardware.
- 7) Click “Finish” to complete the driver Installation.

Now, you can run the PhotoCAL application to calibrate your monitor.

Procedure 2:

If the driver is not properly installed, then please follow the steps below to install the driver.

- 1) Go to Start and right-click on “My Computer” and left-click on “Properties.”
- 2) In the “System Properties” dialogue box, click on the “Hardware” Tab.
- 3) Click on the “Device Manager” button under the Device Manager section.
- 4) If the Spyder entry is attached with a Yellow Icon “- a) Right-click on the Spyder entry under the Spyder section.
- b) Choose the “Update Driver...” to run the New Hardware Wizard.

Once the “New Hardware Wizard” dialogue box appears, follow the steps to install the driver given in **Procedure 1**.

Once the driver is properly installed, then run PhotoCAL to calibrate your monitor.