

Tips & Tricks for Color Monitor Calibration

Featuring the ColorMunki Photo

Introduction

There are many factors that contribute to our ability to perceive and experience color. In order to achieve consistent and good color, it is important to have a grip on color management. This includes successfully controlling one's lighting, display and printing devices. For this reason, color management experts have spent a lot of time and money investigating the phenomenon of color and creating devices that will help the amateur and professional image-maker and designer to create the best possible looking image. As Bruce Fraser, Chris Murphy and Fred Bunting, authors of *Real World Color Management* say,

“Color management won't make your monitor and your printer produce identical color, but it will produce a close and consistent visual match that, with very little learning, you can use as a pretty accurate predictor of the final output.” (Fraser 83)

Equipment Options

Color Management equipment ranges from simple monitor calibration devices to high quality spectrophotometers used for printer/press profiling, for users who are in need of exact color matching, such as those in the graphics industry. One of the primary manufacturers of calibration equipment is **X-Rite**. Aside from the Eye-One Display 2, some other devices for calibration are the ColorMunki Photo, ColorMunki Design, Pantone Spyder, and Monaco Optix.

The monitor calibration product that we will focus on is the ColorMunki Photo

ColorMunki Photo is a color control solution for accurate display-to-print match, with additional color creation and communication tools included. Ideal for wedding, portrait and event photographers- or anyone passionate about the quality of his or her images.

X-Rite states, the benefits the ColorMunki brings to the photographer are the ability to calibrate your display and profile your printer. In addition, it will also automatically configure your application(s) for correct profile usage; be sure that your images are being viewed correctly at client site; and the ability to create color palettes from images and other sources for image editing. The ColorMunki can also calibrate your projector for digital projector slide show presentations!

Preparations

Before you begin loading your software, please make sure that your workspace and computer system is properly prepared.

Lighting

How you light your workspace is incredibly important. It is best to have one consistent light source, rather than multiple sources such as a mixture of sun and lamplight because of the varying hues that are emitted at different light temperatures measured by degrees Kelvin: the lower the temperature of light the warmer the color and vice versa. 5000K is the best temperature of light for viewing because of its neutral color measurement, 6500K is the next best. According to The ISO (International Standards Organization), D50, approximately 5000K, (emits light at a very specific spectral power distribution) is the current industry illuminant standard for graphic arts and the ideal ambient illumination for your monitor should be between 32 lux and no greater than 64 lux. There are SoLux bulbs and lamps available through X-Rite or other lighting sources for this purpose.

Monitor Preparations

In order to get an accurate reading of your display, you will want to run your computer and monitor for 30-60 minutes prior to calibration. The authors of *Real World Color Management* suggest up to 90 minutes for LCD monitors. In addition, you will want to:

- Make sure your screen is clean.
- Have adjusted your monitor resolution to its ideal resolution setting.
- Turn the contrast all the way up (unless your monitor does not have a contrast adjustment) and the brightness all the way down.
- Turn off the screen saver and take your computer out of sleep mode. While the software ideally should keep your computer from going to sleep during the calibration process, it is good to turn it off anyway for the time being to be on the safe side.

System Requirements

Macintosh

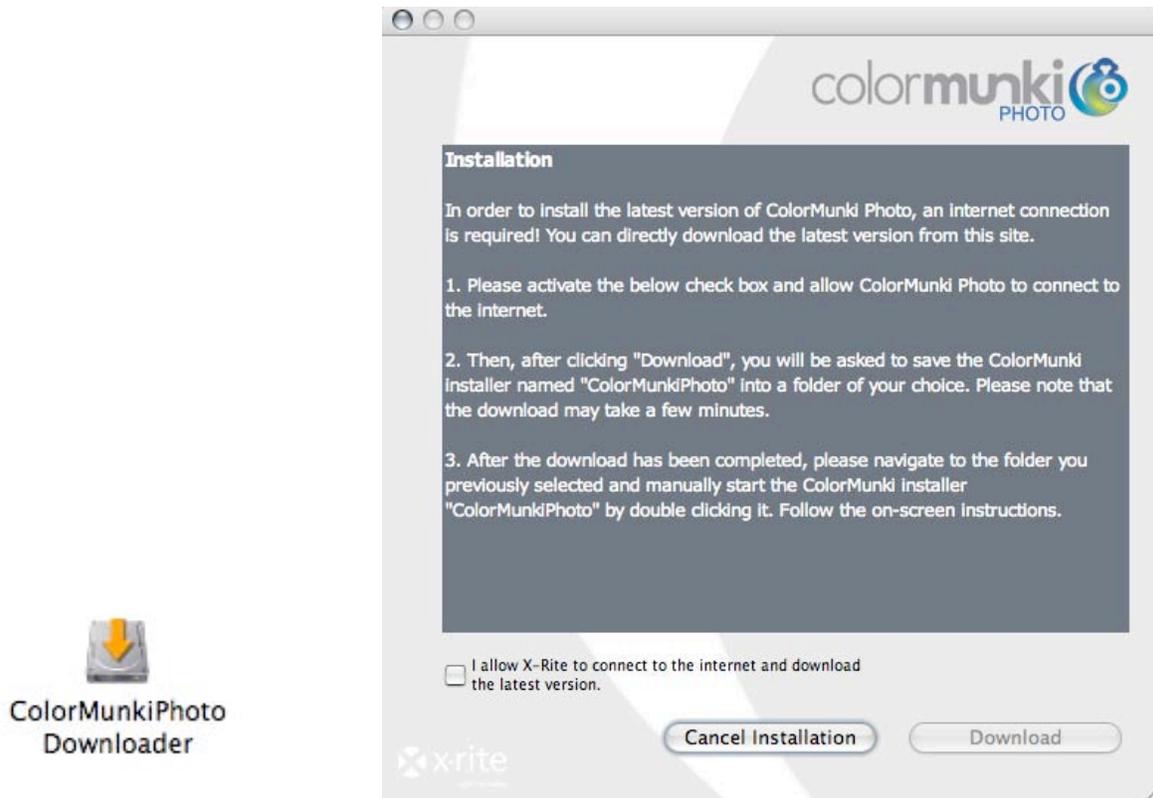
- Mac OS X 10.4, 10.5 with the latest update installed
- 512MB Ram
- G4 Processor or higher (G5 recommended)
- 300MB of available disk space
- Powered USB Port
- Monitor resolution of 1024x768 pixels or higher
- Internet connection required for automatic software update

Windows

- Microsoft Windows XP 32 & 64 or Vista 32 & 64
- 512MB Ram
- PowerPC
- 300MB of available disk space
- Powered USB Port
- Monitor resolution of 1024x768 pixels or higher
- Internet connection required for automatic software update

Software Loading

ColorMunki Photo is the software for the ColorMunki. You will need to have Internet access in order to download this software because it automatically downloads the most current version available. Please note the instructions in the software.



A note on trouble-shooting

If you run into any difficulty launching your software or have technical questions about your equipment, X-Rite is very personable, helpful and can be contacted at 1-800-248-9748.

They also offer support online via tutorials and through email from the website:

<http://www.xrite.com>.

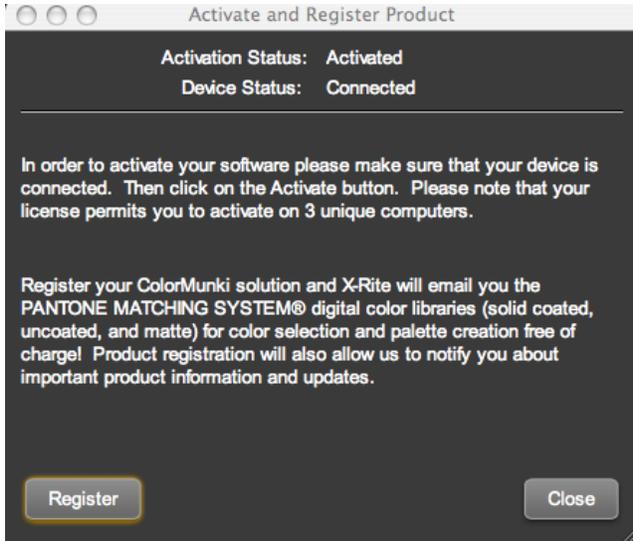
Launching your software to begin

In order for the software to be fully accessible, you must have your equipment plugged in. Make sure that you have connected your calibration device to the unit with the USB cable. You will also want to take your ColorMunki out of its carrying case to give you full access to the dials.

Upon opening your ColorMunki Photo software for the first time, you will need to activate and register your software. Press the middle button that says “Activate” to begin using your software. If Activate does not appear, make sure that your equipment is plugged in. If it won’t initialize,

try re-starting your computer. If this does not work, try going into your disk utility and clear your user permissions. If it still will not initialize or you need more directions, contact X-Rite.

The window will display your activation status and device status.



After you have registered your product, close this window to continue.

The next window that opens is the Welcome window. You can learn more about the features of the ColorMunki including: how to get started; share your images using the DigitalPouch; use the Photo ColorPicker and they also provide some additional information on the basics of managing color.



Close this window to continue to continue.

Profile Your Display

To begin, click on “Profile My Display”. You will be building a *Display Profile*.



Next, under Verify Display Type you will select what you are creating a profile for and mode. Your options are: LCD, Laptop or Projector.



If at any point in time you would like more information about the options that you are choosing and what it means by choosing them, click on the Info button on the lower left corner of the window. A new window will pop up with a description of your options and what it does.

For example, there are two options for calibration: Advanced and Easy. The explanation for each is:

Easy Mode
Easy mode uses a fixed target white point (see below for white point explanation) and the current display settings for brightness and contrast.

Advanced Mode
Advanced mode allows you to customize the following display profile settings:

- **Optimize the brightness and contrast settings** – Enable this option to have ColorMunki help you adjust your display's brightness and contrast settings. This option ensures that your display's brightness and contrast settings are in their optimum positions for profile building.
- **Optimize luminance level display based ambient light conditions** – Enable this option to have ColorMunki adjust the brightness of your display to best suit your ambient working environment. If this option is enabled, the optimize brightness and contrast will automatically also be enabled.
- **Target White Point for Display** – This option allows you to choose the target white point for your display profile. D65 is recommended for photography. D50 is recommended for design, printing and proofing. Native will not make any adjustments to the measured white point and is the default settings for projectors. (For more information, refer to the ColorMunki Help system.)

If you want to be able to calibrate with more discretion choose Advanced, then check Optimize the brightness and contrast settings as well as Optimize the luminance level...

2. Choose the display profiling mode you would like to use.

Easy Advanced

Optimize the brightness and contrast settings of my display

Optimize the luminance level of my display based on my current ambient light conditions

Target White Point for display: D65 (default) ▼

Choose your Target White Point. As they say in the program, D50 is the standard for design, printing and proofing, whereas D65 is recommended for photography.

Target White Point for display: D65 (default) ▼

- D65 (default)
- D50
- Native

Click on Next at the bottom right side of the screen in order to move on to the next step. You can go back to the previous screen by clicking on Back.

← Back Next →

If you are on the right track, your device should be connected but not yet ready to calibrate. To do this, rotate the outer ring of the rotating loop to line up the white bar with the notch as demonstrated on your screen. It is easiest to place the ColorMunki on your desk surface in the same position as the image and move the loop.



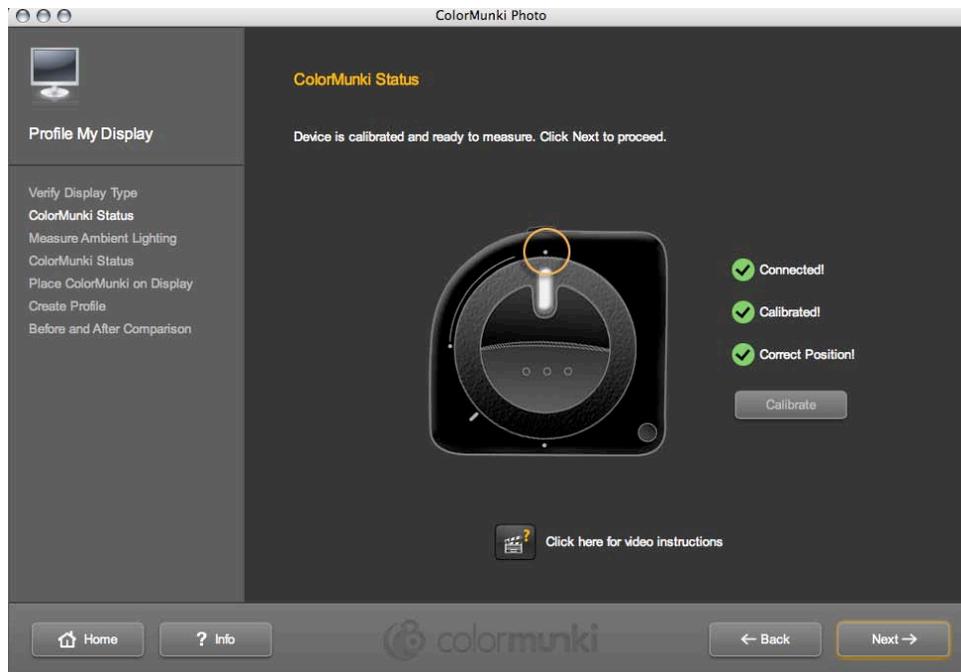
Click on “Calibrate” once you have moved your device into position.



If you are confused about what you are doing, click on  for an animated instruction video. Click “Play” to watch the Quicktime video.

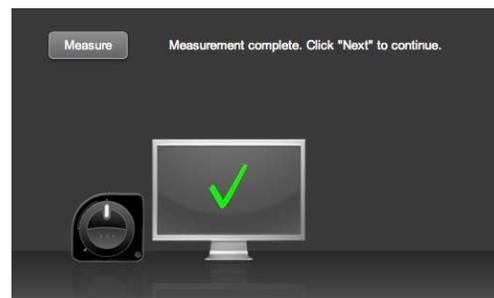
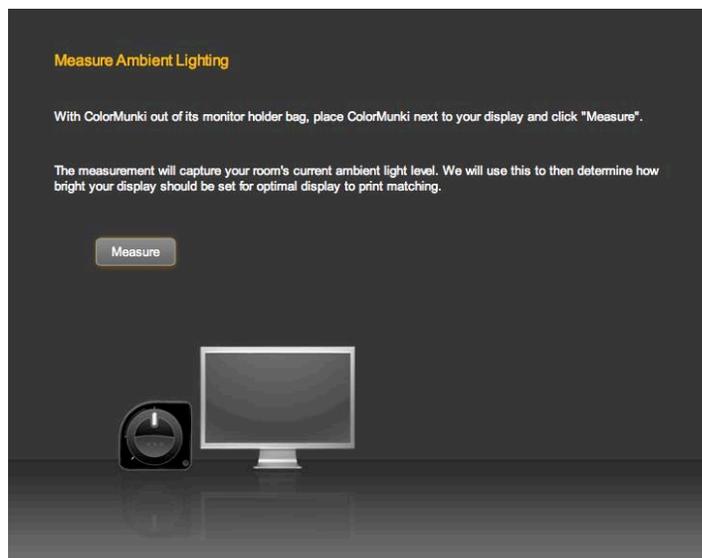


Next you will rotate the white bar to the top of the device. The software will tell you when your device is in the correct position. Click “Next” to proceed.



Measuring Ambient Light

If you chose the Advanced mode, it is now time to measure your Ambient Light. Being careful not to press the button in the center of your ColorMunki, take it out of the holder bag, place it next to your display and click “Measure” with your mouse.



Click on next.

Screen Measurement and Calibration

Being careful not to press the button in the middle of the ColorMunki, return to its carrying case. Make sure that the sensor on the side of your ColorMunki is exposed by sliding open the protective window. The sensor should be visible through the bottom of the case.

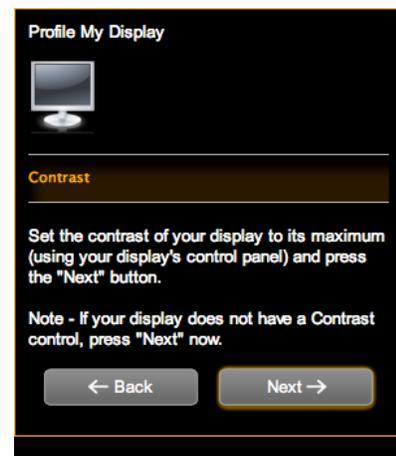
14. Position your calibration unit on your screen. To do this, use the weighted handles to balance the ColorMunki on the screen by hanging them behind the monitor.



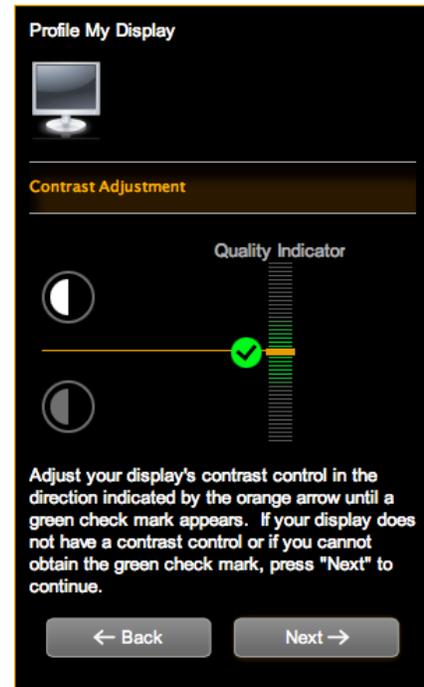
Click on Next

Adjusting Contrast

You should already have set your contrast to 100% in your preparation. If not, do so now.



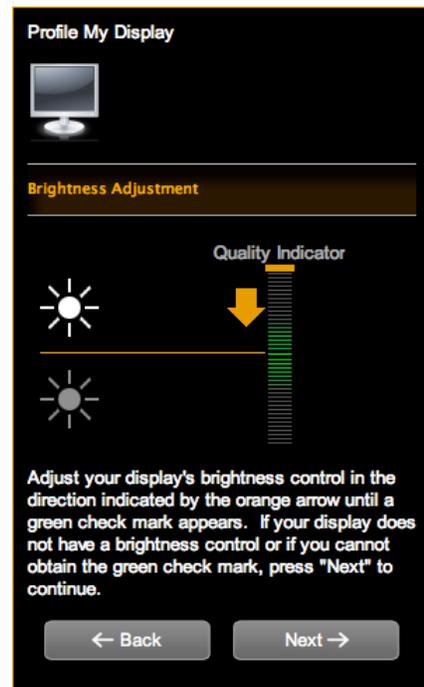
The program will begin taking measurements for contrast. It will show you an ideal range in the Contrast Indicator, the green section of the bar, and what it is actually measuring it at. Make adjustments, moving the contrast down until it falls within the ideal range.



If you do not have Contrast control options, for example with LCD monitors, click “Next” on each of these screens.

Adjusting Luminance

As with the contrast measurement, the program will find the calibration unit on your screen and begin taking measurements. The ideal range is in the green section of the luminance indicator. Adjust the luminance level of your monitor until it falls within the appropriate range.

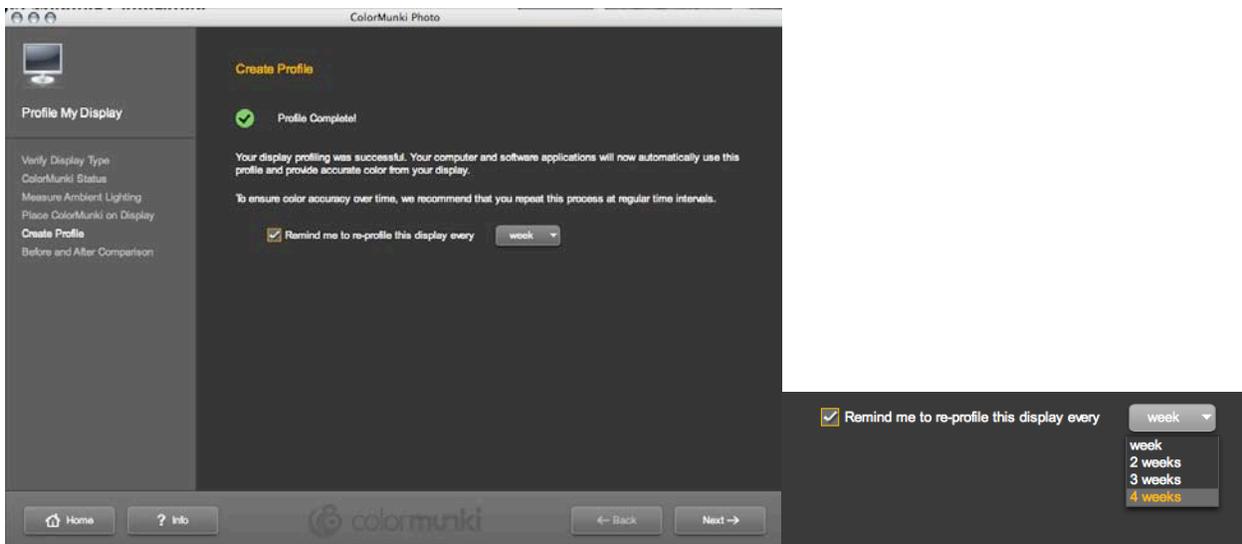


Calibration and Monitor Profile Creation

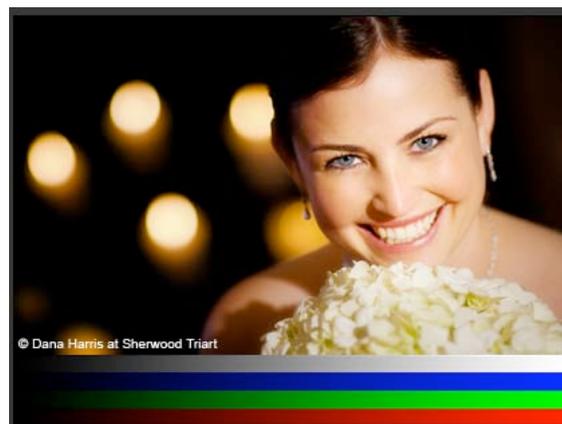
The program is now ready to measure color and to build a profile. Leave your equipment in position on your monitor and click “Next”. The calibration will immediately begin. Be sure not to interrupt the measuring process.

Saving your monitor profile

When the program has completed the calibration process the program will automatically load your new display profile. You can then choose to have the program remind you to re-calibrate. It is recommended that LCD monitors be calibrated at least once a month.



The last screen lets you preview the before and after display profiles. You are done!



Note: the ColorMunki does not inform you of where it has saved your profiles. For MAC users, it is stored at: HD> Library> ColorSync> Profiles.

Suggested Reference Materials

Andrew Rodney. *Color Management for Photographers*. Focal Press. UK: Oxford. 2005

Bruce Fraser, Chris Murphy and Fred Bunting. *Real World Color Management*. 2nd Ed. Peach Pit Press. CA: Berkeley. 2005

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