

COVERS
PHOTOSHOP
3.0

038

Photoshop Techniques

How to Calibrate Your Monitor Using Gamma.

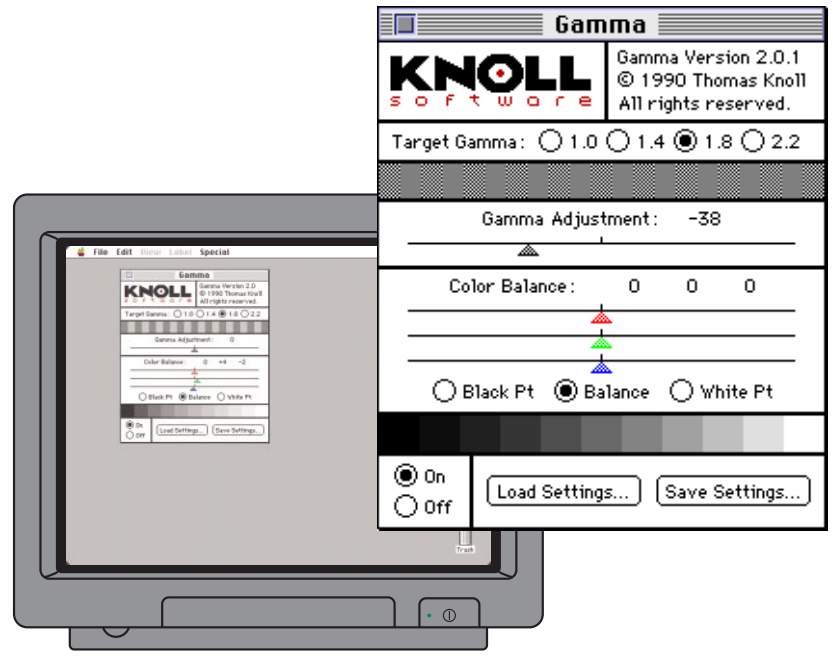
In *Technique #037*, we discuss the elements of an ideal monitor calibration environment. In that discussion we make a strong argument for the use of a hardware calibrator. This article is for those of you who have not invested in one of these devices.

If you already have a hardware calibrator for your monitor, you will not need this issue. A “suction cup” calibrator like the Radius ProSense will automatically calibrate your monitor much faster and more accurately than the process outlined here.

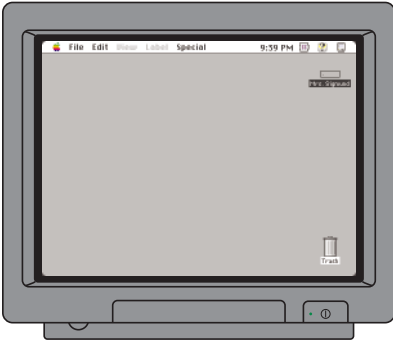
The step-by-step instructions in this issue will walk you through calibrating your monitor by hand. All the software used here ships with Adobe Photoshop. If you follow this process carefully, you should be able to adjust your monitor to correct any glaring color cast.

This is only the first step in our process of calibrating the screen to the printed page. These steps will help remove any color cast your monitor tends to have. They will also increase the screen’s density to help match the printed page.

After you have completed these steps, you will want to continue on with the steps covered in *Technique #039*.

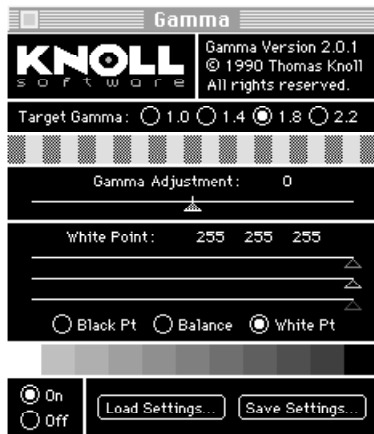


Calibrating your monitor with Gamma



Neutral Background:

A simple gray background is less likely to affect your color eye than fancy colorful backgrounds.



Gamma control panel (Macintosh)

Macintosh Note: If you do not see Gamma in your Control Panels folder, you can find the file on your original Adobe Photoshop software disks. Drag the Gamma icon onto your computer's System folder icon. Restart your computer and continue the calibration.

Step 1

Prepare your monitor's environment.

A: Honestly evaluate your monitor and working environment.

How well can you expect to calibrate your monitor? Your monitor's age, brightness, and environment can drastically affect calibration. Read the section on monitor attributes in *Technique #037*.

B: Make sure the monitor has warmed up.

Your monitor should be on for at least an hour before it is stable enough to calibrate.

C: Set the computer's desktop pattern to a neutral gray.

Colorful backgrounds can influence the way your eye sees color. A plain gray background is best.

D: Turn brightness and contrast settings all the way up.

This should make your monitor uncomfortably bright. Don't worry, the calibration process tends to make monitors dimmer.

Step 2

Setting the monitor's gamma.

A: Open the Gamma control panel.

Macintosh users: Gamma should be in the Control Panels folder under the Apple menu. (If it's not installed, see the note at left.)

Windows Users: In Photoshop, choose Preferences 1 Monitor Setup from the File menu. Click on Gamma in the dialog box.

B: Turn Gamma On.

Click on the "On" radio button. Your screen may darken slightly.

C: Set the Target Gamma to 1.8.

A gamma of 1.8 is recommended for displaying images that you plan to using in commercial printing.

Note: A gamma of 2.2 is recommended for video and multimedia.

D: Drag the Gamma Adjustment slider.

Defocus your eyes so that the screen appears slightly blurred. Then, drag the gamma slider left or right until the whole gamma bar appears to be one value. (See the example below.)

Don't close the Gamma control panel, we are not done yet.

Understanding the gamma bar:

This gray bar is an important reference for calibrating your monitor.

The gamma bar is made up of alternating boxes of solid gray and a black checkerboard pattern.

As you move the Gamma Adjustment slider, the changes in the monitor's gamma affects the appearance of the solid gray boxes. But the checkerboard pattern remains unchanged.

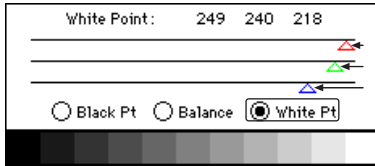
Notice in the examples at right the checkerboard pattern looks gray when blurred. Move the slider until all the boxes match in tone.



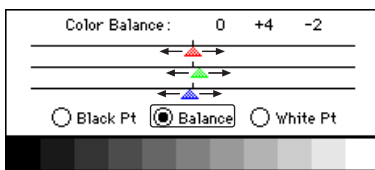
Step 3

Adjusting the monitor's color settings.

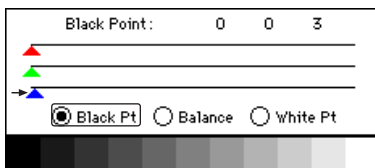
Almost every monitor has some form of color cast. In general, images on a computer monitor will appear to have more blue in them than on the printed page. In these steps you will try to correct for any such color cast inherent in your monitor.



Step 3A: Setting the White Point



Step 3B: Setting the Balance



Step 3C: Setting the BlackPoint

Note: These example adjustments show possible settings for one particular monitor. Don't copy them, but feel free to use them as a starting point for your own experimenting.

A: Adjust the White Point sliders to match white paper.

Click on the White Point radio button beneath the color sliders. We will use these sliders to focus in on the whites of your monitor. Hold a sheet of white paper next to your monitor. Adjust the three color sliders until the whites on the screen have the same hue as the white of the paper.

Tip: Most monitors have a bluish tint when compared to paper white. Try backing off on the blue and possibly the green as well.

B: Adjust the Balance sliders to eliminate color casts in gray.

Choose the Balance radio button. Adjust the three color sliders to eliminate any color casts in the gray swatches at the bottom of the Gamma control panel.

Tip: This can be difficult. One approach is to focus on the gray tones and drag your slider wide to the left and back to the right. Forget the numbers. Drag side to side in smaller amounts until you close in on a neutral gray.

Tip #2: If your eye has an especially hard time distinguishing a color tint, you might want to use a printed reference. You can purchase a standard Kodak 18-percent gray card at most photographic supply stores.

C: Adjust the Black Point sliders if necessary.

Click on the Black Point radio button. Concentrate on the darkest gray swatches. Again, move the three color sliders to remove any color tint.

Tip: As with all these adjustments, make the smallest moves possible to get a balance you are happy with. It is okay to make no adjustments if you do not see any color tint.

D: Check the Gamma Adjustment slider and fine tune.

All the gamma settings affect each other. After adjusting the color balance, you should repeat Step 2D again to make sure the Gamma Adjustment is still good.

Likewise, you can repeat these last steps to make fine adjustments to the White Point, Balance and Black Point settings.

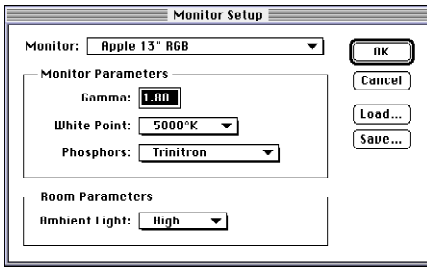
Note: Try to keep your adjustments small. And only make adjustments if you feel that you are improving things.

E: Save your settings!

You've put a lot of work into your monitor settings. Save them for future reference. Click the Save Settings button and save a copy of the gamma settings somewhere convenient.

Tip: You might save the files in Photoshop's folder to keep them accessible. Use the Load Settings button to open a previously saved gamma correction.

Step 4



Windows Users: You will already be in the Monitor Setup dialog box when you close the Gamma control panel.

Set Photoshop's monitor settings.

The monitor preferences tell Photoshop about your monitor. Photoshop in turn uses this information to affect how it displays CMYK images on the screen, or how it converts RGB files into CMYK.

A: Choose Preferences > Monitor Setup from the File menu.

This will bring up Photoshop's Monitor Setup dialog box.

B: Pick your monitor from the Monitor pop-up menu.

This will enter default parameter values for your monitor. If your particular monitor is not there, try to pick one you know is close. If you are not sure, pick "Other" and move on.

C: Set the Gamma to 1.8.

Use the same setting we used in the Gamma control panel.

D: Set the White Point to 5000°K.

This is the default proofing standard in the USA. Unless you have specific reasons to use a different setting, this is probably best.

Note: 6500°K is the general standard outside the USA.

E: Set Phosphors to your monitor's tube type.

Here we hope your monitor was on the pop-up list. If it was, leave this setting alone. Otherwise you can contact the manufacturer to find out which of the tube type your monitor uses.

F: Set Ambient Light to High.

A setting of High leaves your display alone. Either of the other two settings will slightly dim the screen display.



About Photoshop Techniques