LEVEL 1: BASIC CALIBRATION

- For those doing little to no Photoshop manipulation and ordering H&H corrected prints

LEVEL 2: INTERMEDIATE CALIBRATION

- For those doing moderate Photoshop manipulation and ordering H&H corrected prints
- This method is also good for studios that are capturing and processing out RAW images.
- The beginning steps for advanced calibration

LEVEL 3: ADVANCED CALIBRATION

- For those doing extensive Photoshop manipulation in both chrominance and luminance
- This method is imperative for studios doing economy printing and raw processing.
- For those wanting the most accurate monitor to print matching

LEVEL 1

The purpose of monitor calibration is to enable you to get predictable results for your output (prints). By calibrating your monitor either visually using the provided image and prints, or numerically using a colorimeter and software, you are helping set up a system, that when done properly, will give you predictable results.

The first level that is discussed will be a visual calibration system. This means of calibration is the lowest level of accuracy. The reason for the accuracy issues with this method is that every person sees and interprets color differently, and interpretation can change from day to day, or even hour to hour. Human perception of color can be influenced by any and all of the following factors: sugar, nicotine, caffeine, colors in the environment, your mood, your stress level, hormonal levels, your sex, your age... the list is almost endless.

However bleak this may sound, it is possible under ideal circumstances to achieve a good monitor calibration. This method is best suited for those studios that are having H&H do the final color correction on their images, but may want to do some chrominance (color) and luminance (density) adjustments, or want to have a good idea of the accuracy and quality of the captures that they are doing. This method is not recommended for photographers doing economy printing or raw capture.

To calibrate visually, we need the ability to adjust either our monitor's output or to adjust the computer's graphics card with software to change the output. To calibrate our monitor we will use the included print that is with this packet as well as the corresponding image file that is on the CD. The print and image file that are on the CD are part of a system. The print was produced from an identical copy of the image file. It is understood that if you send the image file that you have on the CD to the lab, you will get an identical print back from H&H.

WINDOWS COMPUTERS: To calibrate your monitor using this system, open the calibration image file on your computer into Adobe Photoshop. Then use your monitor controls and video driver controls to visually adjust the monitor to match the print. You are making adjustments for chrominance, luminance and contrast. Look carefully at the highlights, shadows, overall chrominance and luminance of the image. Keep in mind that your interpretation of the print will vary based on the environment you are viewing the print in. In addition, you are trying to compare a transmitted light image (your monitor) to a reflected light image (your print).

MACINTOSH COMPUTERS: To calibrate your monitor using this system, open the calibration image file on your computer into Adobe Photoshop. Then go to the Apple Menu - System Preferences - Displays. Select the Color Button, then press Calibrate. This will open the Display Calibrator Assistant. Click on the Expert Mode option at the bottom of the window, then continue through the remaining steps. When you get to "Select a target gamma" set that value to 2.2. Then on "Select a target white point", set that value to D65. To calibrate our monitor we will use the included print that is with this packet as well as the corresponding image file that is on the CD. The print and image file that are on the CD are part of a system. The print was produced from an identical copy of the image file. It is understood that if you send the image file that you have on the CD to the lab, you will get an identical print back from H&H.

Other limitations of this system may be the light that is in the room where you are viewing the print, the type of monitor you are viewing the print on, and the age of the monitor. Many LCD flat panel displays are very difficult, if not impossible, to calibrate for both good luminance and chrominance. Most CRT monitors have a life span of 3 to 5 years depending upon the amount of use the monitor has had. In many cases, it is better to use an older CRT monitor than many LCD screens.

LEVEL 2

The purpose of monitor calibration is to enable you to get predictable results for your output (prints). By calibrating your monitor numerically using a colorimeter and software, you are helping set up a system, that when done properly, will give you predictable results.

The second level of calibration is dependent upon having good monitor calibration software such as the **x-rite photo's i1Display Pro**.

This method is best suited for those studios that are having H&H do the final color correction on their images, and may want to do some chrominance and luminance adjustments, or are wanting to have a good idea of the accuracy and quality of the captures they are doing. This method is also good for studios that are capturing and processing out RAW images. This method is a recommended starting point for photographers wanting to do economy printing.

These software programs are fairly easy to use. The software will step you through a variety of settings on your monitor, and will end up generating a monitor profile for you to apply to your system.

Before beginning the calibration process with the software, it is very important when using the Windows OS that you go to the Start, Programs, Startup menu and check to make sure the Adobe Gamma Loader is not loading when you start up your computer. If you see Adobe Gamma Loader in the Startup folder, right click on it, and then choose Delete. This does not delete the actual software, but just keeps the software from loading when you start your computer.

During the calibration procedure, the software will ask you for a White Point value and a Gamma value to set the calibration software to. Below are the recommended settings:

White Point - 6500° K (may also be listed as D65)
Gamma - 2.2

After completing the calibration steps as outlined by the software you are using, verify the calibration by opening up the enclosed calibration image into Adobe Photoshop and look carefully at the highlights, shadows, overall chrominance and luminance of the image. Keep in mind that your interpretation of the print will vary based on the environment you are viewing the print in. In addition, you are trying to compare a transmitted light image (your monitor) to a reflected light image (your print).

It is recommended that you also have a good quality print viewing light for this step. An economical light we have tested is the OTT-LITE® TrueColor (TM) Portable 13W Task Lamp. (approx. $45-70)

With this procedure you should be very close in matching the image on the screen and the enclosed print.

Limitations of this system may be the light that is in the room where you are viewing the print, the type of monitor you are viewing the print on, and the age of the monitor. Many LCD flat panel displays are very difficult, if not impossible, to calibrate for both good luminance and chrominance. Most CRT monitors have a life span of 3 to 5 years depending upon the amount of use the monitor has had. In many cases, it is better to use an older CRT monitor than many LCD screens.

LEVEL 3

The purpose of monitor calibration is to enable you to get predictable results for your output (prints). By calibrating your monitor numerically using a colorimeter and software, you are helping set up a system, that when done properly, will give you predictable results.

The third level of calibration is dependent upon having good monitor calibration software such as the **x-rite photo's i1Display Pro**.

For accuracy when doing this level of calibration, you must have either a good quality CRT monitor or LCD monitor. At the time of this document creation, H&H would recommend looking at either the Eizo CE or CG series of monitors.

This method is imperative for studios doing economy printing and raw processing!

Before beginning the calibration process with the software, it is very important when using the Windows OS that you go to the Start, Programs, Startup menu and check to make sure the Adobe Gamma Loader is not loading when you start up your computer. If you see Adobe Gamma Loader in the Startup folder, right click on it, and then choose Delete. This does not delete the actual software, but just keeps the software from loading when you start your computer.

During the calibration procedure, the software will ask you for a White Point value and a Gamma value to set the calibration software to. Below are the recommended settings:

White Point - 6500° K (may also be listed as D65)
Gamma - 2.2

After completing the calibration steps as outlined by the software you are using, verify the calibration by opening up the enclosed calibration image into Adobe Photoshop and look carefully at the highlights, shadows, overall chrominance and luminance of the image. Keep in mind that your interpretation of the print will vary based on the environment you are viewing the print in. In addition, you are trying to compare a transmitted light image (your monitor) to a reflected light image (your print).

It is recommended that you also have a good quality print viewing light for this step. An economical light that we have tested is the OTT-LITE® TrueColor (TM) Portable 13W Task Lamp. (approx. $45-70)

You may see some chrominance and luminance differences between the print and your monitor screen. Depending what variances you see, further adjustments in brightness and / or White Point may be needed. Lower the white point value if your screen is too red or warm. Raise the white point value if your screen is to blue or cool. Adjust your White point values in 250 °K increments during these fine tuning steps.

Limitations of this system may be the light that is in the room where you are viewing the print, the type of monitor you are viewing the print on, and the age of the monitor. Many LCD flat panel displays are very difficult, if not impossible, to calibrate for both good luminance and chrominance. Most CRT monitors have a life span of 3 to 5 years depending upon the amount of use the monitor has had. In many cases, it is better to use an older CRT monitor than many LCD screens.
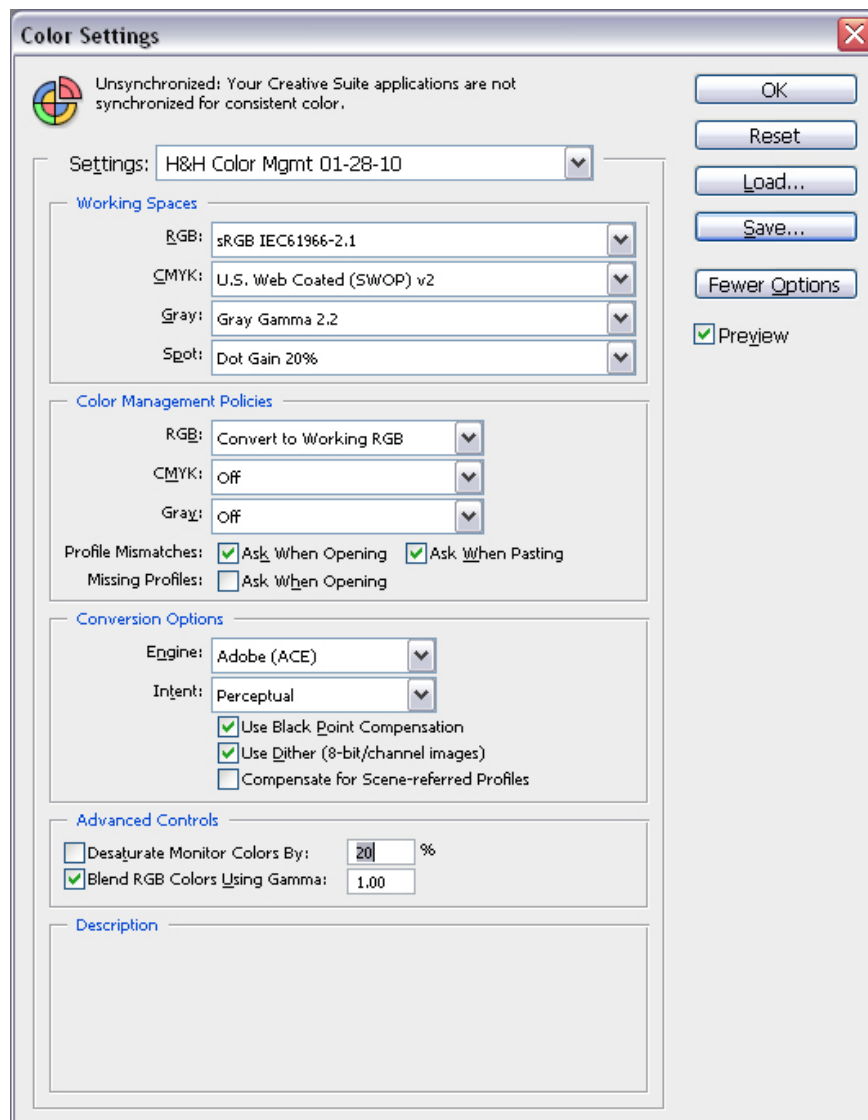
USING THE CALIBRATION IMAGE

I've calibrated my monitor using one of the three methods listed above, are there other color management settings I should pay attention to?

Be sure to set up Photoshop's color management. To bring up the color management settings dialog in Photoshop, go to Edit>Color Settings. Match the settings in your dialog box to the one shown below.

Visual comparison between your images and the calibration print.

My prints don't match after calibrating my monitor - see the instructions in Third Level.