# DGK Color Tools Digital Kolor Kard User's Guide

Made in the USA

## A Note From the DGK Color Tools Team

Congratulations on your purchase of this DGK color tool. DGK is a leading brand of color tools in the USA and Europe. DGK color tools are used worldwide for medical systems, forensic photography, underwater video, robotic vision systems, and commercial production applications. DGK color tools have been chosen by Nikonians™ and Adobe Photoshop™ instructors, large on-line retailers, major movie studios, as well as pro photographers everywhere. DGK color tools are designed in Boston and made in USA. Visit our website, dgkcolor.tools, to see our full array of products. With proper use of this DGK color tool, you can be assured of perfect digital color every time™.

## What is White Balance?

White balance (WB) is the process of removing strong color casts from photographs. In the days of film photography, white balance (color balance) was controlled by the film type and by the film lab. The photographer's role was limited to choosing the best film type for the conditions. Film for daylight and for tungsten (indoor) light was available. In addition, color balance filters could be placed over the lens. In most cases, WB happened at the mini-lab. The photo printing machine applied automatic WB, and the lab technician might also check the prints and correct the colors. As a result, most film photographers were completely unaware of the whole process of WB. Today in digital photography, there is no special film and no lab technician, so WB is the sole responsibility of the photographer. To make things easy, digital cameras have automatic white balance (AWB), which works well under ideal conditions. However, AWB performs poorly under some conditions, even in the most advanced SLR digital cameras. Once a photographer moves beyond phone cameras and simple point and shoot cameras, she will notice color balance problems in some of her photographs. This is the reason why she needs a DGK color tool.

# Quick-Start Guide to White Balance

## What is a DKK - DKC-Pro - WDKK White Balance and Color Reference Card?

The DGK Color reference card is a simple, easy-to-use, ultra portable and economical WB tool. A WB tool consists of one or a series of spectrally neutral objects, and a color reference card contains color patches that represent natural colors, skin colors, primary colors and process colors. Each card is formulated to be spectrally neutral under all lighting conditions. As a result, the light reflected from the cards is a true and accurate representation of the physical qualities of the light illuminating the card. Nothing is added, nothing is distorted, and nothing is taken away. To perform a WB operation, the photographer uses the camera's controls to register the light reflected from the card as a reference. Using this reference, the camera or the post processing software can then perform a precision correction of all the colors in the photograph.

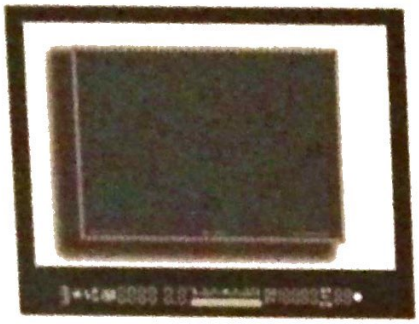
## Quick- Start Guide for In-Camera Custom White Balance (for JPEG Shooters)

To use the card as the basis for an in-camera custom WB, you will need to review your camera's manual and become familiar with "custom white balance" operations. Set the camera to the custom WB setting. Place the card so that it is illuminated by the same light as your subject and take a photo of it. Make sure enough of the center of the frame is covered by the card. Consult your camera's manual to see how much should be filled. Go through the menu to select the photo of the card to set your custom WB. You can save the WB shots and re-use them at any time. Remember, you will need to shoot a new custom WB shot each time you go into a different room, the lights change, or the sun goes behind a cloud.

## Quick- Start Guide for Post-Processing White Balance (for RAW Shooters)

If you are using the cards for RAW shooting, you will need to shoot an image of the card in each lighting situation you encounter.The card does not need to be exactly in focus or centered in your image. When shooting a wedding, for example, walk through the location and shoot a photo of the card in each area of the house, church, or reception where you expect to shoot the wedding party later. Hold the card out in front of yourself so that it is lit by the same light as the area of interest. Use a wide angle lens so you can see where you were when you made the shot. Once you complete the shoot, go back to your card images and set the WB for each series of shots. Select a point in the card picture in your software to be the basis for the custom WB balance setting. Then select all the images taken under that lighting and use the software to set the white point for all of them. For in-camera custom WB, use the large 18% gray area on the back (DKK only). Verify that the card is illuminated by the same light as your subject. Make sure enough of the center of the frame is covered by the card in your picture. Consult your camera manual to see how much of the frame should be filled. Use the camera menu to select that picture for your custom white balance. You can save these images and settings and re-use them at any time.

## White Balance Setting



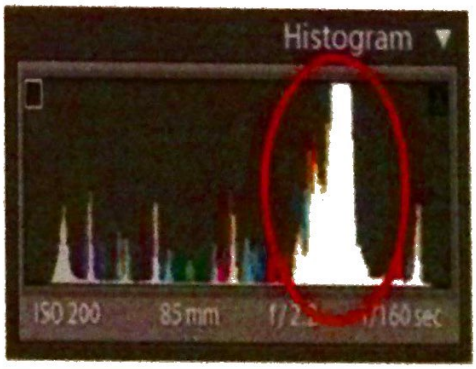
For in-camera custom WB, use patch 2-4 or the large 18% gray area on the back (DKK only). Verify that the card is illuminated by the same light as your subject. Make sure enough of the center of the frame is covered by the card in your picture. Consult your camera manual to see how much of the frame should be filled. Use the camera menu to select that picture for your custom white balance. You can save these images and settings and re-use them at any time.

When shooting RAW, patches 2, 3, 4 on the card are recommended. Shoot WB images of the card at the beginning and end of each series of shots. The card need not be exactly in focus or centered in your image. Once you complete the shoot, go back to your card images to set the white balance for each series of shots. Use the WB dropper tool and select an area on one of the light gray patches. Then select all the images taken in the same light and use the software to set the WB for all of them.

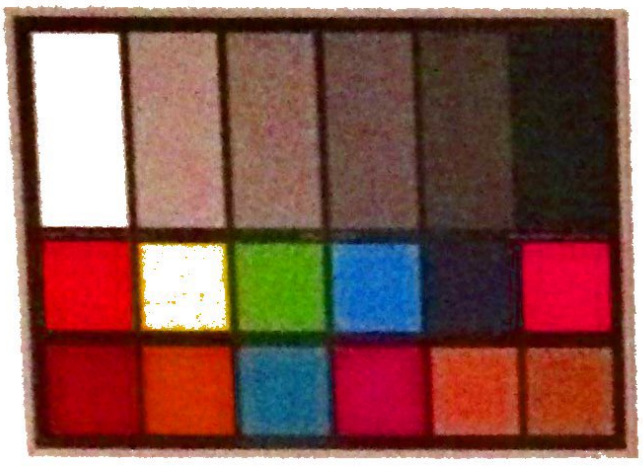
## Exposure Setting and Verification

18% gray cards are used for exposure in film, digital, and video cameras. For exposure setting, place the card in the same light as the subject, and obtain a spot meter reading off patch 4 or 19. To set exposure using patches 1-6, take a photo of the card and use the histogram function to view the image data on the camera's LCD. The 6 gray-scale steps should span the entire luminance range.

To get maximum detail and minimum noise in RAW files, adjust exposure so that the grayscale data are pushed 2/3 to 3/4 to the right in the histogram. Your images will appear over-exposed in your camera LCD, but processing the RAW images in your software later will correct exposure and reveal maximum image detail with minimum noise.



## Color Reference



The 18 color patches include primary colors, process colors, and natural colors such as human skin, sky, flowers, and foliage. These scientifically prepared colors reflect the entire visible spectrum of light in a consistent, accurate way. Use the chart as an objective color reference in the studio or in your post-production work to compare and analyze any color differences or errors that may occur. To evaluate the effect of adjustments made to your software or hardware, simply compare the image of the chart with the actual chart. See the back of the card for colorimetry data. Use Photoshop or other image editing software to convert L*a*b* color values to the relative RGB values for your devices.

## Underwater White Balance and Custom Warm Balance (WDKK)

As depth increases, so does the loss of red, orange and yellow light. Custom warm balance eliminates the "underwater blues" and instantly restores the natural beauty of colors underwater. When shooting underwater, use the light blue side of the WDKK to set your in-camera custom "warm balance". Follow the normal steps for setting custom white balance.