



IR Photography Basics Part I

IR Filters, Exposure, White Balance, etc...



Getting a perfect IR Photograph requires a few basic tips that can make a great difference in the end result. In this tutorial we will explain some easy shooting techniques and the reasoning behind them.



Cameras:

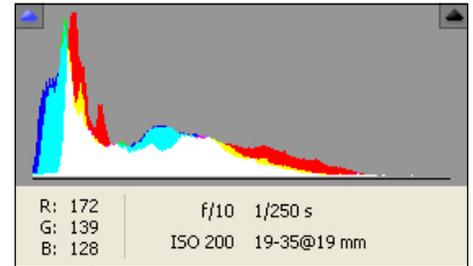
First of all, it's important to know your camera and the functions it can perform. Having a good camera and knowledge of its capabilities is important for the tips explained in this tutorial. Most SLR cameras have the functions we will discuss but some are limited. Make sure you read and understand these functions in your user manual if necessary. Some cameras give greater flexibility and options and others greater sensitivity to the IR spectrum. Almost all camera models we convert are great for IR but some have these limitations, requiring more use of manual settings and a greater knowledge of photography.

Exposure Compensation and Histogram:

The most important functions we recommend all photographers know well are the Exposure Compensation and Histogram functions. These functions need to be used or checked with each shot and in conjunction with each other. As any good photographer will admit, exposure is key. IR photography requires a little more attention to correct exposure than normal color photography.

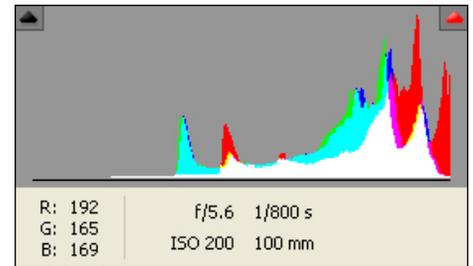
The reason for this is the metering system in your camera is not designed to meter or measure IR light. This means the camera's automatic modes will not give perfect exposure all of the time. The good thing is IR light is usually found in close amounts to visible light, giving the camera's metering system a good chance to get the exposure spot on or at least close. Most of the time slight exposure compensations are required for each image. Sometimes large amounts of compensation are required due to the lack of IR light in your image. The best way to deal with this is to compensate for the inaccuracies of the meter. Simply adjust your exposure compensation a little + or - until you get the correct exposure. Depending on the amount of IR light within your image, it may require more or less compensation to achieve a good exposure. Strong direct light usually requires less compensation than shady or darker subjects. Also, more use of exposure compensation will be required for some IR filters which we will discuss later in this tutorial.

How can you tell the exposure is accurate? It's very simple, the histogram will show you the exact amount of light captured in your image. Don't trust how your image looks on the LCD! Many photographers preview their photos on the camera LCD, they trust the exposure is good, but later are disappointed when they view the image on their computer. Depending on the surroundings, reflections on the LCD, incorrect brightness of the LCD and many other reasons can give you a false looking image while shooting in the field. You have to analyze the Histogram after each shot to make sure the exposure is correct. The key is having a "center weighted" histogram. This means making sure the histogram shows as much of the data within the full range of the graph and also it must be as much in the center of the graph as possible. (See the examples to the right.) If the histogram is weighted to the left you need more (+) compensate. If it is weighted to the right you need less (-) compensation. Keep adjusting the exposure compensation until it is center weighted as possible. This will allow for the widest range of post editing if needed.



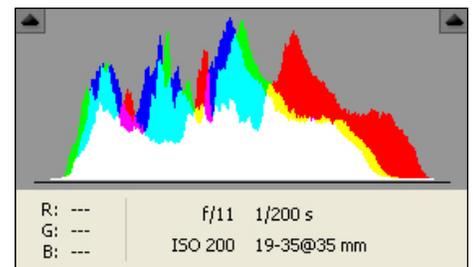
Left Weighted Histogram

This image needs more (+) exposure/light. Adjust your compensation settings in the positive (+) direction.



Right Weighted Histogram

This image needs less (-) exposure/light. Adjust your compensation settings in the minus (-) direction.



Center Weighted Histogram

This is the result you want. Center weighted exposure with all data within the graph and nothing being cut off. No further exposure compensation is needed

Infrared Filters:

Filter choice is a very frequented subject with conversion customers. Which filter will give the best Black & White results? Can you achieve great Color IR and great Black & White results with the same filter choice? What is the best all around filter? Well, here's some info about the three main filter types and the results they will produce:

Black & White Filter (830nm):

If you are looking for great Black & White Infrared images straight from the camera, with no Photoshop processing, you will love the 830nm filter. This filter will not allow the camera to capture any visible/color light and will produce only black and white images. Of course, an accurate White Balance is key to any IR image, which we will cover in depth later in this tutorial.

Pros:

- Black & White images straight from the camera.
- Little to No need of post editing to achieve great B&W images.
- High amount of contrast.
- Deep darks and bright, crisp highlights.

Cons:

- Usually requires more + exposure compensation.
- More expensive.



Image captured using the Black & White 830nm filter with no Photoshop editing.

Standard Filter (720nm):

This is our most popular Infrared filter choice. If you are looking for good B&W images and the flexibility of shooting in Color Infrared, this is a good filter option. The reasons are, flexibility of Color IR and ease of converting the files to B&W while maintaining high contrast quality. This filter allows the camera to capture a small amount of visible/color light while also capturing the full range of Infrared light. As with all IR filters it will require slight exposure compensations for most images.

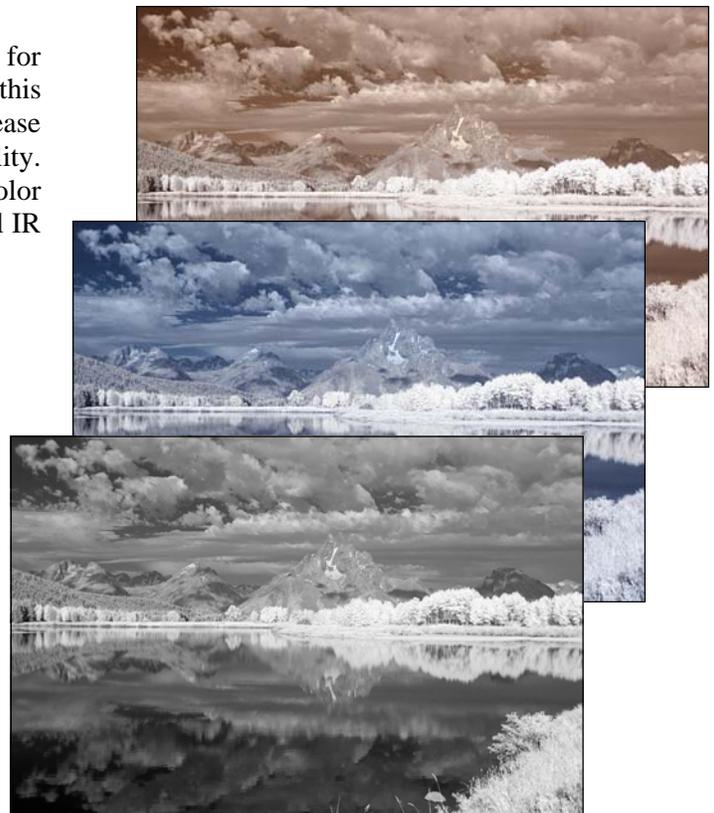
Pros:

- Color IR images are possible.
- Maintains great B&W results with small amount of post editing.
- Cameras metering system is more accurate.
- Less expensive than other filter options.

Cons:

- Requires small amount of post editing for B&W images.

(Images to the right were captured using the Standard 720nm filter, some with minor Photoshop adjustments. Refer to our Basic Adjustments for IR Images for basic adjustment methods)



Amplified Filter (665nm):

This filter allows better Color IR results by allowing the camera to capture more of the visible light spectrum. It will also allow the camera to capture all of the Infrared spectrum. This is the filter of choice for those who desire vivid color IR images. As with all IR filters it will require slight exposure compensations for most images. This filter will allow the cameras automatic metering system to more accurately adjust the exposure, which requires less manual exposure compensation by the photographer.

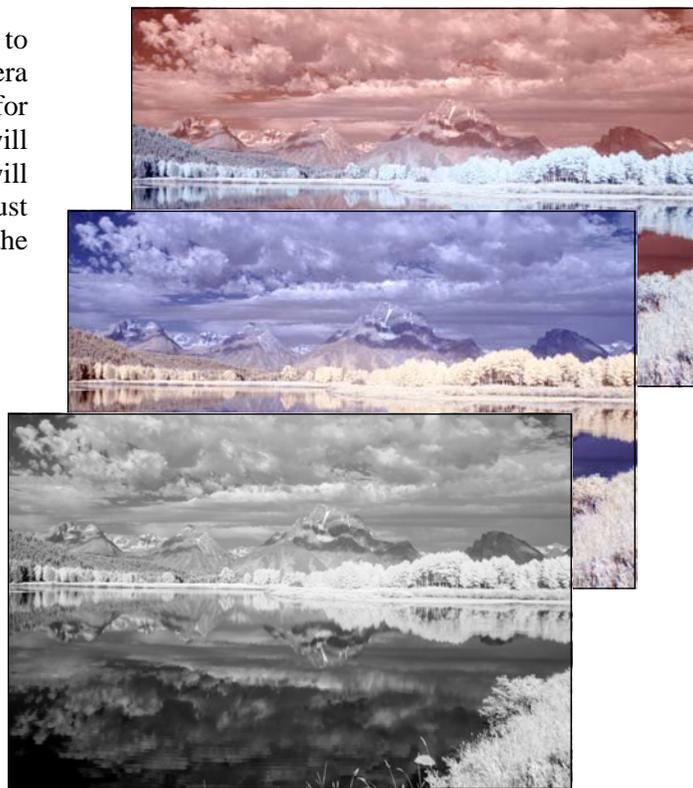
Pros:

- Great Color IR images.
- Good B&W results with more post editing.
- Cameras metering system is more accurate.
- Requires less manual exposure compensation.

Cons:

- Requires more post editing for great B&W images.
- More expensive.

(Images to the right were captured using the Amplified 665nm filter, some with minor Photoshop adjustments. Refer to our Basic Adjustments for IR Images for basic adjustment methods)



White Balance:

Another key to a good Infrared image is setting an accurate white balance. Setting an accurate white balance before shooting will require less post editing, especially when using the B&W filter. For those of you shooting the B&W filter, an accurate white balance will produce pure black and white images straight from the camera. Refer to your camera user manual for methods of setting a custom white balance for your camera. We recommend using an Expodisc, 18% Neutral Grey Card or similar object for setting a white balance. Another option is setting your white balance using lawn or grass as the neutral object. This can work in most circumstances but has been known to be inaccurate in some cases, causing mixed results.

For best results when using a grey card place the card in direct sunlight at an angle as to not reflect harsh light towards the camera. It is wise to keep a good white balance reference image on your memory card as some camera models allow using a stored image as a white balance source. This can be helpful if your camera settings are mistakenly changed and you may not have your Expodisc or grey card to set a new white balance.

Conclusion:

If you are new to IR photography you may experience a small learning curve to become confident shooting in this format. Don't worry, it's actually very easy and fun to learn all that your Infrared converted camera can do. By following these basic shooting techniques, and a little experimentation on your part, you will have great images in no time. Remember, you can call us with any questions you have as we are willing to help any time.