

Infrared (IR) Photography

Presented by

Arik Gorban

Introduction

Early B&W Infrared films

In the 1960s, Kodak introduced 35mm false-color infrared film

A number of recording artists used it for their album covers.

Near infrared light

Near infrared light can only detect reflected infrared light.

Infrared photography most commonly uses near infrared light.

Near infrared light cannot be used for thermal imaging.

Far infrared light

Far infrared light can see sources of heat. It's used for thermal imaging.

Kolarivision.com and LifePixel.com – Excellent resources for information about IR and the various options, IR conversion, and purchase of IR cameras and filters.

Why Infrared?

Unique images that open up more opportunities. Works well in midday light when it's not great for standard photography.

A new way to see, photograph, and be creative.

Effect can't be simulated in post – some plug-ins give the overall IR fill, but they can't bring out the details that true IR captures.

Gear Considerations

Any camera can be used with an external IR filter. However, using an IR filter on the lens while there's an IR blocker filter on the sensor is not ideal.

Not all cameras can be converted (check out vendor's website to see if your camera can be converted).

Sensor size – the vendor must be able to remove the IR blocker filter and place the IR filter over the sensor (depending on the type of conversion).

For proper control, the camera should be able to record and output RAW images.

Other limitations may prevent a camera from being a fit for conversion.

Used vs. New

Disadvantages of used: old sensor, noise, limited dynamic range, replacement parts (e.g., battery) may not be available, you'll still need to invest in the IR conversion.

Advantage: Overall, could be a less expansive solution.

Some IR conversion vendors sell used and new IR-modified cameras, as well as offering clients' cameras conversion services.

There are some good deals on eBay for used IR cameras, but the information about the camera and the conversion is not always accurate.

Conversion Steps

The conversion of a DSLR involves a few steps that are taken by the conversion vendor:

Remove the IR blocker (Hot Mirror filter).

Add an IR filter (various types for different wavelengths and effects).

Create a custom WB.

Calibrate the focus point for the lens that you intend to use. This is not an issue for mirrorless cameras, when the focus is on the actual sensor.

Full Spectrum Conversion – the IR blocker is removed, but an IR filter is not placed on the sensor. The camera can still take visible light pictures and IR pictures with the use of external filters.

Other notes about IR

Grain/Noise – Film IR was very grainy; it's a creative choice now whether you want to add grain or keep noise in the picture.

Glow – IR images on film had some glow. Depending on the light, it may also appear in digital images, or it can be simulated in post processing.

Post processing of digital IR images is mostly required. The images come out pretty flat and with a warm color cast out of the camera.

Post Processing Recommendations

It is recommended to have a special custom WB programmed in the camera for IR. Otherwise, the images may come out too orange or red, beyond the adjustment range of the Lightroom and ACR sliders.

Lightroom / ACR adjustments

WB – touch the WB eyedropper on an object that should be close to gray. Often touching tree trunks produces good tones to start with.

Adjust Exposure, Highlights, Shadows, and Dehaze to get good details and contrast.

Remove Sharpening and Noise Reduction, if the picture has more noise than desired. Sharpening makes the noise more obvious and harder to remove. Photoshop has good noise reduction options, so it's best to not do any sharpening earlier and apply noise reduction as the first step in Photoshop.

Perform optics and geometry corrections, cropping and horizon leveling.

You can simplify the actions above by creating a Preset for IR images.

PS Adjustments

The first step in Photoshop should be Noise Reduction and Initial Sharpening (Noise reduction plug-ins do both).

Perform Channel Swapping of the red and blue channels. In the Channel Mixer:

Red Channel selected (default) – change Red from 100% to 0% and the Blue from 0% to 100%.

Blue Channel selected – change Red from 0% to 100% and the blue from 100% to 0%.

You can simplify this by creating an Action or a custom preset in the Channel Mixer Adjustment Layer.

Make further WB and Tonal Adjustments as you would do with standard pictures.