ϟ Electronic Flash ϟ

Modern cameras have sophisticated flash exposure systems. They can automatically adjust the output of a flash for good exposure by measuring the light as it strikes the sensor. This through-the-lens (TTL) system does a very good job with on-camera flash. A matching cable can move the flash off camera to offer more lighting options. Some cameras even control off-camera flash without using a wire between the camera and the flash. These systems are easy and convenient to use, but can be expensive if you want to use several flashes.

By learning manual flash control you can save money. And by understanding how flash works, you can be confident of your results under any circumstances. Like most automatic systems, your flash assumes an average subject and can be fooled by subjects that are lighter or darker than "average". Manual flash control is consistent with tricky subjects. Here's why.

The control of manual flash is the distance from the flash to the subject. The further the distance, the less intense the light is. When you know the output of your flash you can determine the exposure. The output of the flash is expressed as the Guide Number (GN). This guide number is always relative to an ISO speed, so a guide number must have the associated ISO in order to be useful.

A flash of unknown output must be tested to establish its Guide Number(GN). Simply take a series of pictures using different f-stops with the flash at a measured distance from the subject (film shooters should use slide film) while recording the f-stop used. The image with the best exposure will tell you which f-stop to use. Multiply the stop by the distance the flash was from the subject and you have your GN for the ISO used in the test. The formula is f x d = GN. For any other distance the formula f = GN ÷ d can be used. If your original GN is for 100 ISO and you change to 400 (a difference of two f-stops), simply use the 100-speed stop and close down two stops. Once you have the guide number you can compute the proper exposure for any distance or any other ISO.

You can mix several flashes together and control their ratios by placing them at different distances from the subject. Remember also that d = GN ÷ f. Dividing the GN by the f-stop of lighting intensity that you want to use will tell you the distance to place the flash.

You need to be aware of a few technical facts to get reliable results..Flashes rely on capacitors to hold the charge that makes the light. A flash that has not been used for a long time may not perform properly upon first re-use and may take several uses to get back to full function. Several full-power flashes may help to re-form the capacitor after an idle period.

Flashes use lots of power, so carry spare batteries. Use the strongest batteries you can find. A flash will deplete batteries that are made for radios and flashlights in only a few pictures. If the flash takes too long to recharge between pictures, change the batteries for fresh ones. I consider it "too long" when the flash is not ready to fire when I'm ready to take the next picture. (I save batteries that are "too weak" for my flash and use them in other, less-demanding equipment, such as flashlights, radios, tv remotes, and slide viewers.)

Many professionals use high-power rechargeable battery packs instead of throwaway cells to get faster recycle times. There are heavy-duty flashes made for this kind of use. If your flash is not one of these be careful not to fire your flash too many times in rapid succession. Repeated rapid flashing can overheat a consumer-grade flash and damage it.