What is a flash unit?

It is a short duration light source that can be used when existing light is insufficient to give you the picture that you desire. It approximates the color of daylight so that when shooting color, you can use "regular" daylight film or daylight setting on a digital camera.

A flash is designed to "synchronize" with your camera shutter so that the shutter will open and the flash fire at the same time. At what speed(s) does your camera synchronize with your flash?

How is a flash unit used?

First, flash units must be connected electronically to your camera by being mounted on the hot shoe or externally by means of a P.C. cord. Next, the ISO is set on the flash unit. This is vital in most flash units since when activated, the flash controls exposure and your camera meter is unusable. Now, you are ready to calculate exposure.

For manual operation, setting the ISO on the flash unit, will give a set of f-stops which coordinate with the distance of the subject(s) from the camera. Select the f-stop from the scale on the flash unit in relation to your subject distance.

For automatic operation, the flash indicates a single f-stop. The variable in your exposure becomes flash duration. An electronic sensor on the flash unit determines when enough light has been reflected back from the subject. Some dedicated flashes can make this determination from the film or sensor plane. (TTL=Through the Lens.) Reading from the film plane can give much more accurate flash exposures.

Now, you may make flash pictures so long as your subject is within the distance range of the f-stop or auto-setting you are using.

How is the flash exposure determined?

The flash exposure is determined by a combination of the f-stop and distance. As distance from flash to subject increases, the amount of light reaching the subject decreases dramatically. For example, a flash 10 feet from the subject generates 4 times as much light as one 20 feet away. Therefore, the aperture or f-stop must be opened wider as flash to subject distance increases and closed a distance decreases. Since we generally want to keep the shutter speed at the synchronization speed, we must vary the aperture to compensate for the changes in subject brightness.

What about ISO?

The faster the film or the higher ISO setting the more sensitive it is to light. This means that less light is needed when using higher ISOs. Since the aperture is what controls the amount of light on flash exposures, higher ISOs enable you to stop down your lens in order to achieve the same exposure for a scene.

Example: Your flash unit at ISO 100 recommends F4 for a subject 20 feet away and F2 for a subject 40 feet away. The maximum aperture of your lens is 3.5. You could still photograph the subject with this flash unit by simply changing to 400 ISO speed. This would give you a setting of F4 at 40 feet.

In addition the smaller apertures opening available with higher ISOs will give greater depth of field.
What is “Red Eye?”

Red eye, while less noticeable in black and white, can be a big problem in color photography. Red eye is when the light reflects off of the back of a portrait subject’s eyes. This is because the pupils are open in the dim light. Red eye causes a ghostly look in black and white and a bright red devil look in color. Many camera’s have a “red eye flash” feature. This is a pre-flash that will close the pupil and reduce the reflection. A better solution is to get the flash farther away from the lens getting both a better light quality and less red eye. This can be done with the use of a bracket and/or a pc cord.

What should you look for when buying a flash?

- Power source (Is it rechargeable?)
- Size and portability
- Energy used
- Power (more power=more depth of field and greater flash distance)
- Recycling time

Questions:

1. When would you use flash?

2. What is sync speed?

3. How is flash exposure determined?

4. What is red eye?