

ELECTRONIC FLASH

Most electronic flash units are made up of the following circuitry:

1. Power source-
 - [a] battery
 - [b] AC adapter
2. Step-up transformer
3. Storage capacitors
4. Isolator circuit
5. Thyristor
6. Sensor
7. Flash tube

Electronic flash is an extremely desirable source of alternate light because:

1. It is economical [compared to flash bulbs] if you do not leave it turned on.
2. It provides a hard, brilliant light.
3. It is very portable.
4. On automatic setting it is quite hassle free.
5. The light is Daylight balanced.

On the other hand,

1. It can give you very hard shadows.
2. Bounce back off flash from smooth surfaces or glass.
3. Red eye.
4. Limited range because of fall-off.
5. Limited maximum shutter speed (x-sync speed) with focal plane shutters. Also shutter speed has no effect on exposure from electronic flash.

Because focal plane shutters vary the opening size in the shutter curtain above certain shutter speeds, electronic flash may not be used at these speeds since only a portion of the film will be exposed. With focal plane shutters you may use only the x-sync speed [usually marked with an x or otherwise designated as different than other shutter speeds].

The limited range of light from flash units must also be kept in mind when using electronic flash. Light falls off inversely to the square of the distance. This is known as the INVERSE SQUARE LAW. It simply means that if you illuminate a square foot of area at one foot, at two feet this same light would now be spread over 4 times the area and at four feet would be spread over 16 times the area. In no time at all, you can see that the light becomes so quickly diminished that on most flashes you have insufficient light at 60 feet for proper exposure!!

Each Electronic Flash system has its own scale set up. The basics of using each system are, nevertheless, the same.

MANUAL MODE

1. Set the ISO/ASA on the flash unit.
2. Determine the FLASH to SUBJECT distance.
3. Locate this distance on your flash calculator scale.
4. Find the f stop adjacent to this distance.
5. Set this f stop on your aperture ring.
6. Be sure that your shutter speed dial is set at flash or x-sync and not at a faster shutter speed!
7. Shoot!

You must refigure your f stop if your subject moves.

AUTOMATIC MODE

In the automatic mode the flash circuitry will vary the duration of the flash to provide more or less light at the subject to accommodate the f stop you have selected. Flash durations can vary from 1/1000 sec. to 1/30,000 sec. or faster. The advantages to using automatic flash are listed below.

1. No f stop reset as your subject moves.
2. Shorter recycle time at the shorter flash durations.
3. Increased battery life because of the shorter recycle times.

Basic automatic mode operation.

1. Set the ISO/ASA on your flash unit.
2. Determine what subject to flash range you will be working with.
3. Look at the range line that would place the above distance near the centre of this line.
4. Find the f stop designated for this range.
5. Set this f stop on your aperture ring.
6. Your flash will now vary flash duration to give you the correct value of light at the subject for this f stop. This is true so long as your subject stays within the limits set by your range line.

On some flash units you have only one auto setting...with these units you have only one stop and your subject only one distance range selection. On other flash units there are multiple range lines available some of which overlap. This means you have choices of a variety of f stops. Your subject must still be within the prescribed range of the selected f stops.

Still other flash units that are totally dedicated use the camera's TTL flash metering. These units tie in with in camera electronics. You make an f stop selection simply by setting the f stop aperture ring..the flash will now provide light to fulfill your selection. Your subject however must be within the distance range as set out on the scale on your flash unit for the f stop selected.