Using Flash

without expanding your vocabulary…

Guide Number

The first thing we need to know about our flash is just how powerful it is. A flash's "guide number" tells you how powerful a flash is. A higher guide number indicates that a flash is more powerful and, therefore, has a greater range.

GUIDE NUMBER

GN=Distance x f/number

It describes the flash's output capability

If the distance to the subject is ten feet,
and the f/number (lens opening) is 8,
the Guide Number is 80

A flash with a GN of 80 has a range of
ten feet at f/8. This same flash will have
a range of twenty feet at f/4,
five feet at f/16, and
forty feet at f/2.

Guide Number is affected by 2 important factors:

1. ISO

GN=160 at ISO 400
GN=80 at ISO 100

2. Feet or Meters

GN=150 in feet
GN=46 in meters

GN by ISO…

ISO Multiplier Table

ISO 100: 1.0
ISO 200: 1.44
ISO 400: 2.07
ISO 800: 2.99
ISO 1600: 4.30
ISO 3200: 6.19

Multiply by 1.44 for each successive stop up, and divide by 1.44 for each successive stop down.

ISO

Most manufacturers rate their GN at ISO 100. The sneaky ones rate at 400. If a flash is rated at 400, divide the GN by 2.07 to get an honest GN.

A GN of 160 at ISO 400 is about 78 at ISO 100, giving that flash a roughly ten foot range at f/8.

Most manufacturers are on the metric system, so they tend to rate their GN's in meters.

Multiply a metric guide number by 3.05 to find the GN in feet.

GN= 30 in meters

30x3.05=91.5

GN=92 in feet

Three Types of On-Camera Flash…

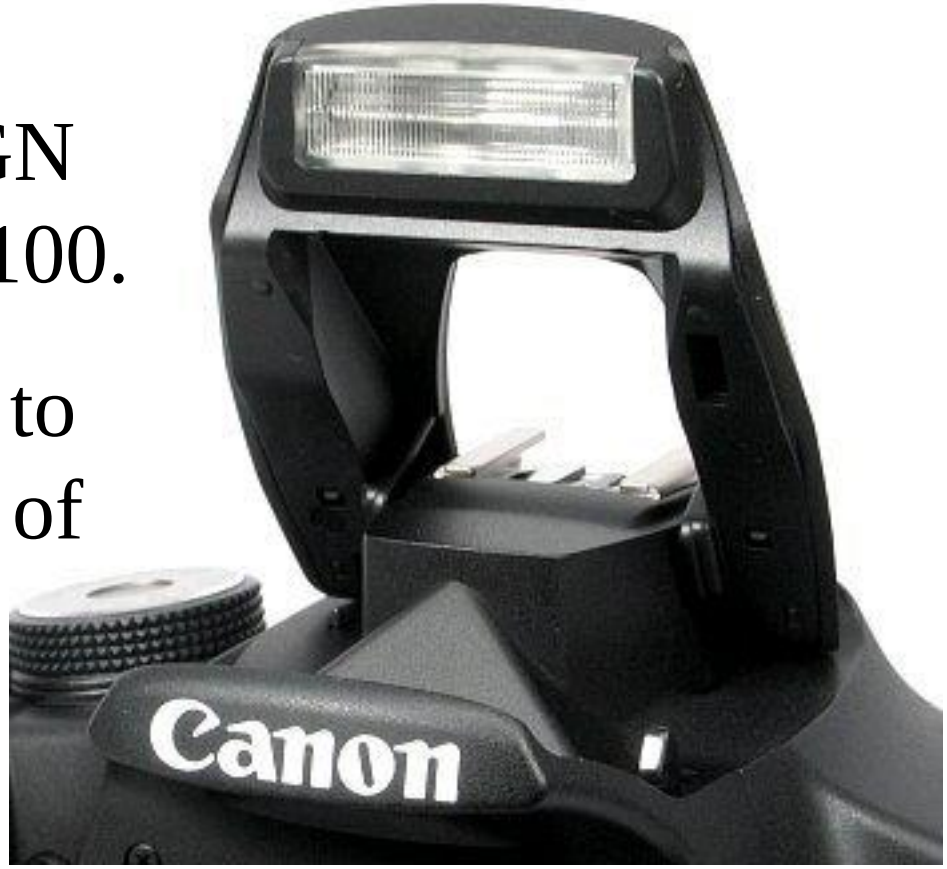
1. Built-in, or onboard
2. Shoe Mount
3. Bracket Mount or “Tater Masher”

Built-In Flash

Usually not very powerful.

Most DSLR's have a built-in flash with a GN of 39, in feet, at ISO 100.

Very small and close to lens increases chance of red-eye



Hot Shoe Flash…

More Powerful

More controls

Usually has bounce and/or swivel and zoom capability

Heavier and expensive

Bracket Mount Flash…

Usually very powerful

Mounts off-center

Has more controls

Usually has bounce and/or swivel and zoom capability

Heavy, expensive, and often off balance

Use of Flash…

A camera-mounted flash is generally used in one of two ways, either as a primary light; or as a fill light.

In situations without sufficient light for a good exposure, your flash becomes the dominant source of light which can lead to dark backgrounds and contrasty subjects.

Using flash for fill is something of a balancing act and requires good control over exposure, both ambient and flash.

The following picture depicts a situation in which the ambient light was so dim that the flash was needed to properly expose the moving subjects. It also clarifies why many event photographers have come to loath the term “Romantic Lighting.”

Flash as Primary Light Source

Use of Flash…

The problem with having only one flash as your primary source of light is ‘light fall off.’ Light fall off is the degree to which light diminishes with distance from the source. Light fall off is measured by the inverse square law. An object in a picture that is ten feet away will receive not one half, but one fourth the light of a subject that is five feet away. That makes it very challenging to light multiple subjects at different distances simultaneously with only one flash.

Working indoors, with a relatively low ceiling, you can bounce the flash to provide more uniform light over a longer distance.

Another weakness of direct flash is the harsh shadows created when the background is already a little dark…

Whenever possible, bounced flash is usually the best approach to using flash as the primary light source.

Use of Flash…

Most photographers prefer to use flash as a supplemental light source or “Fill Flash.” Proper exposure with fill flash requires, if not accurate exposure, at least balanced exposure. Too much or too little fill flash can ruin an image.

In a fill flash situation, the photographer usually wants the flash to diminish (not necessarily eliminate) shadows to give the subject a natural three dimensional look. In these situations, your flash exposure should usually be somewhat less than your ambient exposure. Allowing the flash to match the ambient light can result in a flat, low detail image that looks like a cardboard stand-up.

No Fill Flash in Bright Daylight

No Fill Flash, Lightened

With Fill Flash

TOO MUCH FILL FLASH

Too Much Fill Flash, Darkened

Placement of the flash can be very important too, especially when the flash is the primary source of light. A flash mounted on the shoe centered on top of the camera tends to flatten out details.

Mounting the flash on a bracket off to the side can help enhance details, especially where texture is involved.

But if you have a helper handy…

moving the flash off the camera altogether and having an assistant either maneuver a light stand or just hold the flash in the right position can bring out details and render a very naturally lit look.

Most modern flash units are dedicated flashes. That means that they are designed to work with a specific brand of camera. These flashes communicate with the camera, and have automation that makes flash exposure much easier to get right. They also offer access to certain special features native to the camera.

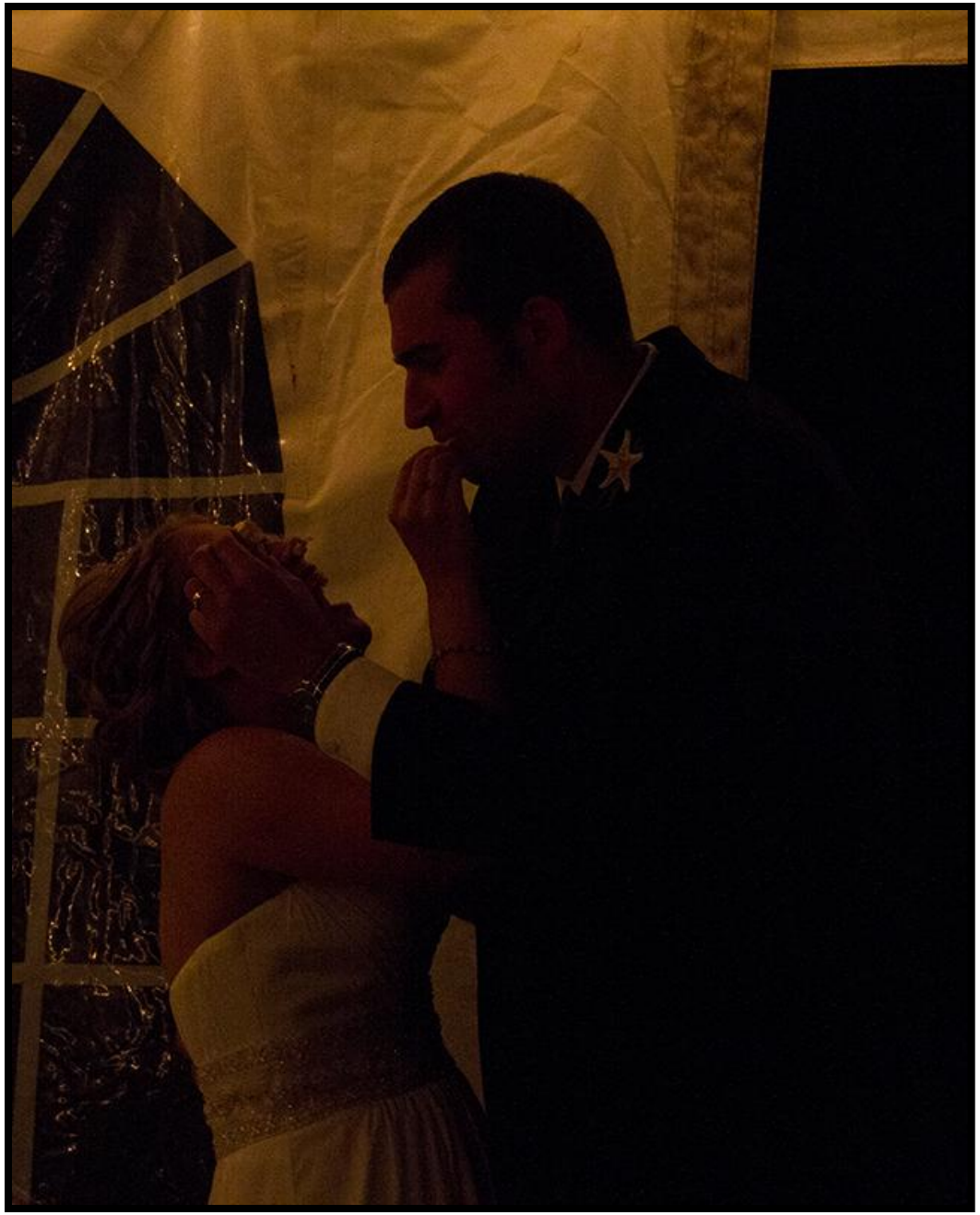
A good dedicated flash will offer three special capabilities:

1. **TTL metered flash exposure-**The flash's exposure is controlled by a meter in the camera that measures light as it comes into the lens.
2. **Automatically limiting the shutter speed to the flash synch speed-** a focal plane shutter can only correctly expose flash at a certain speed or below.
3. **Flash Ready signal in the viewfinder-** An icon in the viewfinder will light up to let you know when the flash is charged up and ready to shoot.

If you’ve ever made a picture like this, you now have a great example of the importance of flash synch speed…

FLASH OUT-OF-SYNCH

Shooting before the flash is cycled up and ready can lead to even greater disappointment…



A somewhat better dedicated flash adds two more special capabilities:

1. **Automatic zooming of the flash head to match the focal length of the lens-** When you change lenses, or zoom out or in with a zoom lens, the flash head will automatically set its focal length to give you flash coverage to match what your lens sees.
2. **Auto focus Assist Light-** When you partially press the shutter button to focus, if the light is too low for the auto focus system to focus, the flash projects a crosshair for the lens to focus on.

Telephoto Flash, Wide-Angle Lens

A good dedicated flash will also know when the flash head is set to bounce. Some flashes have a close up setting that involves aiming the head lower to achieve flash exposure up close. These flashes usually flash a warning in the viewfinder to remind you that you're showcasing your subject's shoes now.

Flash Exercises

Pictures using flash…

Start either in early morning or late evening, and some later in the dark.

1. Using whatever exposure mode you feel appropriate to the situation, find a brightly lit scene and shoot people pictures fairly close using flash to minimize or eliminate shadows.

2. In Manual Mode, shoot a subject in open shade. Meter off the background, set exposure, shoot with flash.

3. In Programmed Automatic Mode, shoot the open shade subject again without any preliminary meter reading.

4. Inside, in average household lighting, Using whatever exposure mode you feel appropriate to the situation, take flash pictures. Try to find someplace with fluorescent lighting and do the same thing.

5. If you have questions, call or email me.

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