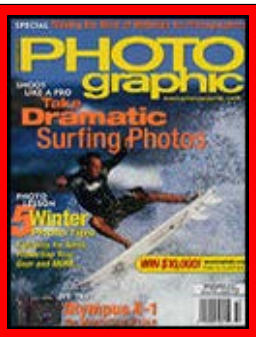


CURRENT ISSUE

From the Archives

Recent Additions
Accessories
Buyer's Guides
Digital Cameras
Digital Peripherals
Film
Film Cameras
Lenses
Monthly Contest
Photo Techniques
Point and Shoot
Travel Photography

Site Features

Photo Links
Vote
Previous Votes
Previous News
Classifieds
Photo Store

Past Issues

2003
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

2002
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

Photo Offers

Digital Photo Printing
Digital Photo Camera
Digital Imaging
Kodak DC4800
Zoom Camera

PETERSEN'S PHOTOgraphic

Search
Magazine

Home/News Subscribe Give a Gift Subscriber Services Photo Store

From the Archives

The Wonders of Flash

The Editors, August, 2002

Electronic flash is portable light that you can take anywhere, letting you get nice shots when there isn't enough light to shoot otherwise. *Photo by Jack and Sue Drafahl*

Underwater, flash restores colors that are lost to the water's filtering effect in available-light photos. *Photo by Jack and Sue Drafahl*

Electronic Flash : More than just spare light

What is an electronic flash unit? For one thing, it's spare light, conveniently packaged in a "little black box"—a compact, portable light source that enables you to take photos of many subjects when there isn't enough light to do so otherwise.

Electronic flash units come in a variety of shapes and sizes, but all do the same thing: provide handy light anywhere you need it. The flash units built into cameras are the smallest and least-powerful, but have the advantage of always being there when you need them. Accessory flash units that mount on the camera's hot-shoe provide more power and features—and generally the ability to move the flash off-camera when desired. Both built-in and shoe-mount flash units can provide the speed and ease of completely automatic operation.

Handle-mount flash units attach to the camera by means of a mounting bracket. Some require a sync cord to connect to the camera's PC terminal, rather than employing the camera's hot-shoe. These "potato-masher" flash units are generally larger and more powerful than shoe-mount units.

Portable two-piece flash units offer still more power. After-market batteries, like the Quantum units, turn small, portable shoe-mount flash units into two-piece units (flash and battery) with more flashes per charge and shorter recycle times (more on this soon).

For the studio and on-location photographer, there are more-powerful studio flash systems. Studio flash units incorporate a modeling lamp in each

Article Index

Page 1
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7

In the studio, electronic flash can produce professional-looking portraits and product shots—in fact, that's how most pros do portraits and product shots. *Photo by Lynne Eodice*

Fill-flash pleasantly softens harsh shadows in outdoor portraits. *Photo by Ron Leach*

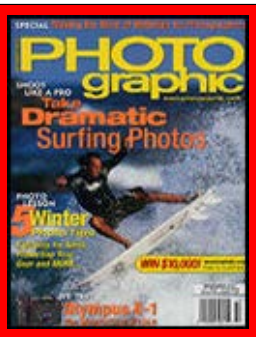
Electronic flash is ideal for close-up photography. At close range, its intensity allows you to stop the lens down to increase depth of field, while its brief duration minimizes the effects of subject and camera movement. *Photo by Jack and Sue Drafahl*

head, which lets you see what the lighting effect will look like—since flash tubes emit only brief bursts of light, it's impossible to observe their effect without continuous-operating modeling lamps (a few shoe-mount flash units now incorporate a modeling-light feature, generally by means of a series of flash bursts). Some of the less-expensive studio flash units are one-piece affairs known as monolights. These combine flash head and power pack into a single unit, and even include a built-in slave that fires the unit cordlessly when it "sees" the flash from a camera-connected unit.

Most studio flash systems consist of a power supply, which plugs into a wall outlet for AC current, plus several flash heads that plug into the power supply. Such systems provide a lot more power than camera-mount units (handy when reflecting the light from an umbrella reflector—more on umbrellas later), and permit multiple-light setups. The power pack permits you to set all flash heads to equal power or to vary the power setting among the heads to control the lighting ratios. There are also battery-powered portable studio flash systems.

Electronic flash lets you get sharp, well-exposed shots of reasonably near subjects no matter what the ambient light level.
Photo by Ron Leach

Go To Page 2



From the Archives

Built-in flash units are always there when you need them, but aren't very powerful or "artistic." Most consumer-oriented AF 35mm SLRs and pocket cameras have built-in flash units.

Shoe-mount flash units provide more power than built-in units, and can be removed from the camera via an extension sync cord or even wirelessly with some systems.

Getting Ready

In order to shoot with electronic flash, there are a few things you must do in preparation.

First, read the instruction book that comes with the flash unit (as well as the flash section of your camera manual).

Next, install the batteries, as per the instructions. Be sure to use the right type of batteries and to install them properly. It's all in the book.

Switch the flash unit on and fire it with the test button to make sure you've installed the batteries properly. Switch the unit off, and attach it to the camera, as per the instructions. Hot-shoe-mount units automatically connect to the camera's flash-sync circuitry; other units require you to link flash and camera with a cord. (And some shoe-mount units can be moved off-camera via a dedicated sync cord, or even wirelessly—more on this later).

Today's flash photographers have it easy—besides TTL automatic exposure control (more on this in a moment), today's cameras automatically set the proper flash-sync shutter speed when a dedicated shoe-mount (or built-in) flash is turned on.

Focal-plane shutters (found in all of today's 35mm SLR cameras) in effect move a slit across the film to expose it when set to faster shutter speeds (generally, 1/125 or 1/250 and faster with today's cameras), so only the portion of the film that is uncovered when the flash fires will be exposed. If you've ever got back flash photos that are half black, they were shot at too fast a shutter speed. You can always shoot at a slower shutter speed than the camera's flash-sync speed, but never a faster one.

Note: With lens-shutter cameras

Article Index

Page 1
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7

Many also offer on-camera bounce capability (via tilt/swivel heads) and other features.

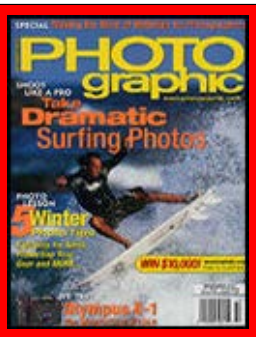
Handle-mount flash units such as this Metz 50MZ-5 from Bogen generally offer more power than shoe-mount units.

Two-piece portable flash units generally provide more flashes per battery charge. This Quantum battery can power both camera and flash unit.

Ringlights surround the lens with light, producing even, shadowless lighting that's ideal for close-up subjects.

(compact point-and-shoots, many medium-format models and view cameras), the shutter uncovers the entire film frame at one time at all shutter speeds, so any shutter speed can be used for flash photography.

Go To Page 3



CURRENT ISSUE

From the Archives

Recent Additions
Accessories
Buyer's Guides
Digital Cameras
Digital Peripherals
Film
Film Cameras
Lenses
Monthly Contest
Photo Techniques
Point and Shoot
Travel Photography

Site Features

Photo Links
Vote
Previous Votes
Previous News
Classifieds
Photo Store

Past Issues

2003
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

2002
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

Photo Offers

Digital Photo Printing
Digital Photo Camera
Digital Imaging
Kodak DC4800
Zoom Camera

PETERSEN'S PHOTOgraphic

Search
Magazine

Home/News Subscribe Give a Gift Subscriber Services Photo Store

From the Archives

The exposure calculator on manual flash units (and on auto units when used in manual mode) tells you what aperture to use when shooting at a given flash-to-subject distance, once you've set the ISO speed of the film you're using. Note that the farther away you are, the larger the aperture required. At great shooting distances, the flash can't produce enough light to provide proper exposure even with the lens wide open.

$$\frac{\text{GUIDE NUMBER}}{\text{DISTANCE}} = \text{f-stop}$$

$$\frac{80}{10} = \text{f/8}$$

The guide number formula: Just divide the guide number by the flash-to-subject distance, and the result is the f-stop to use for the shot.

A flash meter, such as this Sekonic L-608

Flash Exposure

Virtually all modern electronic-flash units feature automatic exposure control. But before going into that, we're going to cover manual flash, so you'll understand the principles involved.

When shooting with electronic flash, the very brief duration of the flash burst (1/1000 second or shorter with most units) serves as your "shutter speed"—it controls the duration of the exposure. All you have to do is set the lens to the right f-stop. The simplest way to to this is by using the exposure calculator on the flash unit. First, tell the calculator how much light the film you're using needs, by setting the calculator's film-speed index to the ISO speed of your film. Next, focus on your subject and read the focused-upon distance (which, for on-camera flash, is the flash-to-subject distance) on the lens barrel. Using the exposure calculator on the back of the flash unit, locate the flash-to-subject distance. Opposite it you will find the correct f-stop to use for the picture.

You'll notice that the farther away you get from the subject, the larger the lens aperture you must use. When the subject is a long way off, you won't be able to open the lens enough to provide proper exposure. That's why it's silly to shoot flash pictures from the stands at a football game or other event where you're a long way from your subjects—the flash will have little effect.

Another way to determine the correct f-stop is by using the flash unit's guide number. This is a (sometimes optimistic) rating of the flash unit's illuminating power, provided by the manufacturer. Just divide the flash-to-subject distance into the guide number, and the result is the f-stop to use. If the guide number is 80 for the film

Article Index

Page 1
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7

from Mamiya, will give you good exposures with any flash unit, or any number of flash units, whether they're used direct or bounced. If you shoot with a studio flash system, you need a flash meter. (Like most flash meters, this one will also read ambient light.)

Automatic flash units will expose for the closest object within range, but even manual units can only expose subjects at one distance properly. Closer objects will be overexposed; farther ones will be underexposed. It's best to eliminate objects closer than your main subject from flash shots, either by physically removing them, or by recomposing the shot with them out of frame. *Photo by Mike Stensvold*

Autoflash units used at close range, or manual units at low power, have very brief durations—1/20,000 or faster. This makes them ideal for freezing quick actions. *Photo by Jack and Sue Drafahl*

Built-in flash units aren't very powerful, but they can still enhance an outdoor shot at close range. Note the light falloff at the

speed you're using, and the flash unit is 10 feet from the subject, 80 divided by 10 equals f/8.

Since the manufacturer's guide number might not be accurate for your particular shooting circumstances, it's wise to shoot a guide-number test. Have a friend sit on a chair 10 feet from your camera/flash unit, holding a series of cards marked with your lens' f-stops. Shoot a series of flash shots (being sure to give the flash unit plenty of time to recycle between exposures—10 seconds after the ready light comes on should be sufficient), one at each f-stop, with your friend holding the appropriate card for each shot.

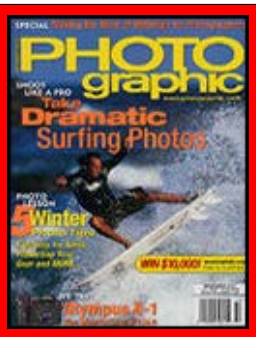
After the film has been processed, examine it, and pick the best exposure. Multiply the f-number on the card in that frame by 10 (the flash-to-subject distance), and you've got your guide number for that flash unit and film.

Notes: If you find yourself shooting in a larger or darker-walled room than the one in which you shot your guide-number test, or outdoors at night, you'll have to give more exposure than indicated by the guide number. Conversely, if you shoot in a smaller room with more-reflective walls, you'll have to give less exposure than the test indicated. Guide numbers are guide, not ironclad laws. For many years, manufacturers' guide numbers were given for ASA (ISO) 25 film. Today, they are given for ISO 100 film—a flash unit's guide number for ISO 100 film will be twice it's guide number for ISO 25 film (and a flash unit's guide number for ISO 400 film will be twice its guide number for ISO 100 film). Along the same lines, guide numbers given in feet will be 3.28X higher than guide numbers given in meters.

edges of the picture. *Photo by Mike Stensvold*

Normal front-curtain sync fires the flash at the beginning of the exposure, then records ambient-light speed streaks; thus the streaks appear in front of a forward-moving subject (top). Rear-curtain sync fires the flash at the end of the exposure, after the ambient-light streaks have been recorded; thus the ghost-image streaks follow rather than precede the moving subjec t (bottom). *Photo by Mike Stensvold*

Go To Page 4



From the Archives

Most color film is balanced for daylight, and thus renders colors unnatural under other light sources (here, overhead fluorescent room lights). *Photo by Mike Stensvold*

On-camera flash corrects the color problem, and also the blurring effects of hand-held camera movement at the slow shutter speed required by dim available light. But on-camera flash produces a flat look, and casts shadows on the wall behind the subject. You could get rid of the shadow by moving the subject farther from the wall, but that wouldn't fix the flat lighting effect. *Photo by Mike Stensvold*

Moving the flash unit off-camera (via a sync extension cord, or wirelessly if your camera and flash permit) gives the lighting some direction and the face some modeling, but the light is still pretty harsh, so the shadow is still annoying. *Photo by Mike Stensvold*

Autoflash

Automatic flash units contain sensors that read the light reflected from the subject. There are two main types for today's cameras. TTL (through-the-lens), and flashmatic. TTL auto units, which include those built into and offered as shoe-mount accessories for most AF 35mm SLR cameras, measure the light through the lens, and adjust the flash duration to provide proper exposure. Thus you can shoot at many f-stops (limited by the distance to the subject). Flashmatic units, found in most compact point-and-shoot cameras, maintain a constant flash duration, and provide correct exposure by adjusting the camera's f-stop based on the flash-to-subject distance as measured by the camera's autofocusing system—they just automate the guide-number method of exposure control.

Early automatic flash units were neither TTL nor flashmatic, and this type is still available (some TTL units have this as an added feature today). With this type of autoflash unit, you set the aperture you wish to use (each aperture provides a specific shooting-distance range) as per the flash unit's instructions. A sensor on the flash unit reads the light reflected back from the subject and adjusts the flash duration to provide proper exposure for subjects within that flash-to-subject distance range.

Bear in mind that, like automatic-exposure cameras, autoexposure electronic flash units compute their exposures for "average" conditions. If you're shooting particularly light or dark subjects, in a small highly reflective environment or in a large dark one, you'll have to make some adjustment to compensate. Some cameras and flash units have flash exposure compensation, which allows you to adjust the flash-to-ambient-light ratio.

Bouncing the light from a photographic umbrella reflector softens it, reducing the harsh effect. *Photo by Mike Stensvold*

Another way to deal with the harshness is to use both off- and on-camera flash units. Several camera manufacturers offer this capability in their AF 35mm SLRs. Here, the off-camera unit (above and to the left of the camera, as in the previous photos) produced two units of light while the on-camera unit (in this case, the camera's built-in flash unit) produced one. Thus, we still get the directional effect of the off-camera flash, but the harsh shadows are softened by the on-camera flash. The weaker light in such a setup is known as the fill light; the effect is known as fill-flash. *Photo by Mike Stensvold*

You can also soften the effect of the flash (and give it direction) by bouncing it off a nearby wall (top) or ceiling (bottom). The wall generally works better for people-pictures, because the direction is more pleasant—ceiling bounce comes from too high an angle to be attractive. Many shoe-mount flash units have tilting/rotating heads that allow you to direct their beams at a

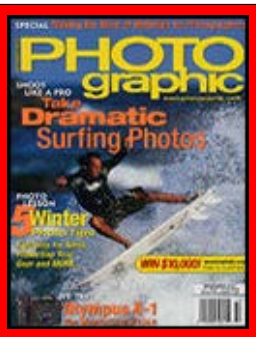
One more thing to look out for when using automatic flash is the infamous foreground subject. If there is an object in your scene that is closer to the flash than the main subject, the flash will probably expose the near subject properly and underexpose the more distant main subject. In such situations, set the flash for manual exposure control, and calculate exposure based on the flash-to-subject distance.

It's best to avoid situations like this altogether, because a flash unit can't properly light subjects at different distances—nearby subjects will be more brightly lit than distant ones. So the best solution is to recompose so the foreground object is no longer in the picture.

If you have two main subjects, make sure both are the same distance from the flash unit. You can do this by moving the subjects so that they are the same distance from the flash, or by moving the flash off-camera so that it is the same distance from all of the subjects.

wall or ceiling while retaining the benefits of automatic TTL flash exposure control.
Photo by Mike Stensvold

Go To Page 5



CURRENT ISSUE

From the Archives

Recent Additions
Accessories
Buyer's Guides
Digital Cameras
Digital Peripherals
Film
Film Cameras
Lenses
Monthly Contest
Photo Techniques
Point and Shoot
Travel Photography

Site Features

Photo Links
Vote
Previous Votes
Previous News
Classifieds
Photo Store

Past Issues

2003
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

2002
Jan Feb Mar
Apr May June
July Aug Sept
Oct Nov Dec

Photo Offers

Digital Photo Printing
Digital Photo Camera
Digital Imaging
Kodak DC4800
Zoom Camera

PETERSEN'S PHOTOgraphic

Search
Magazine

Home/News Subscribe Give a Gift Subscriber Services Photo Store

From the Archives

Normally, fill flash should be weaker than the main light source, so it just lightens the shadows. If the "fill-flash" is too strong, it will eliminate the shadows and produce an unnatural look. *Photo by Ron Leach*

With backlighting, the fill-flash should balance the background exposure, thus keeping the subject from appearing in silhouette. The flash also adds keylights to the subject's eyes, giving them "life." Some camera/flash systems allow you to set the fill ratio. And some will automatically balance foreground and background exposures. *Photo by Ron Leach*

Flash Characteristics

Electronic flash units produce light with a color temperature of 6000 K or thereabouts, well suited for use with daylight-balanced color films. (These films are actually balanced for 5500 K light, but that's close enough for most uses.) If your flash photos take on a slight blue cast, shooting with an amber No. 81A filter over the camera lens should solve the problem.

The short duration of the electronic flash burst (from 1/1000 for most manual units at full power and for auto units used at the far end of their distance range, to 1/30,000 or shorter for variable-power manual units set at low power and auto units used at very close range) makes electronic flash great for freezing moving subjects and for reducing the effects of subject and camera movement in close-up work. However, very short flash durations can cause reciprocity failure—a loss of film speed and, with color films, a color shift. With black-and-white and color-print films, this can be corrected when the negatives are printed, but with color-slide films, it might be wise to shoot a test roll to see what (if any) exposure and filtration corrections are needed. Film manufacturers generally publish reciprocity data for their films, which provide good starting points.

When autoflash units are used at close range or manual units are used at low power, there is excess, unused energy. Thyristor circuitry returns this unused energy to the capacitor to be used again, thereby extending battery life and producing very short recycle times. (Automatic flash units used at minimum shooting distances recycle almost instantaneously.)

Recycling time is how long it takes a flash unit to get ready to fire again after it has been discharged. How do you know when the flash unit has

Article Index

Page 1
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7

If you're shooting against a sky background, you can use "key-flash": Set the flash to overpower the ambient light by a stop, and expose for the flash. Thus, the flash-lit subject will be properly exposed, while the ambient-lit background is slightly underexposed, giving a darker, more dramatic sky. Again, some camera/flash systems let you select the fill ratio (set the flash for +1). You can also do it manually, by placing the flash at a distance that calls for one stop less exposure than the ambient light, and setting the camera for the flash-exposure aperture. This will underexpose the ambient light by one stop. *Photo by Ron Leach*

A bounce umbrella is an easily positioned source of soft light. Aim your flash unit at the umbrella, and the reflected light output is enlarged and thus softened as it is reflected (bounced) from the umbrella onto the subject. The umbrella's inner surface can be coated with white, silver or gold fabric. White produces soft light, silver produces harsher but still soft light, and gold produces warm soft light that's great for portraits.

A shoot-through umbrella is covered with translucent fabric. The flash unit is again aimed into the umbrella, but the umbrella is aimed at the subject—you're using light transmitted by the fabric, rather than light reflected from it. Shoot-throughs are handy

recycled and is ready to fire again? The ready light on the unit (or in the camera viewfinder) will glow. However, with many small flash units, the ready light comes on before the unit has reached full charge. If you shoot another flash picture as soon as the ready light comes on, your photograph may be underexposed. So it's best to wait a few seconds after the ready light comes on before shooting the next shot.

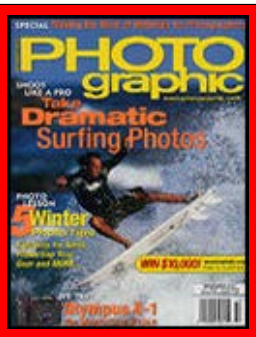
Light from a flash unit is directed forward by the built-in flash reflector. The beam is brightest in the center, weakening the farther to the sides you go. A flash unit's stated angle of coverage is useful information—it will let you know how wide a lens you can use with the flash unit. But bear in mind that objects at the edges of the photo won't be as brightly lit as objects in the center of the photo. Also, be aware that very long and very-large-diameter lenses can block a portion of the beam from a built-in or shoe-mount flash unit.

when you need to position the light source very close to the subject, or are working in a room/studio with a low ceiling.

A box light (also known as a softbox) is essentially a square shoot-through umbrella. Its main advantage is that it produces square rather than umbrella-shaped catchlights in subjects' eyes.

Professional people photographers generally use two or more flash units to produce pro-looking studio portraits—a main (also called key) light, which establishes the lighting direction; a fill light, which softens the shadows; a background light, which illuminates the backdrop; and possibly a hair light coming from high and behind the subject, to add a highlight to the hair.

Generally, portraits look best if the main light is above and to one side of the camera. How far above and how far to one side (and to which side) depend on the subject and your preferences—experiment with different main-light positions and see what looks best with your subject. And while expert portrait photographers can do wonders with harsh light, it's a lot easier to work with soft light. Harsh light is produced by sources that are small relative to the subject, such as the flashtubes in shoe-mount flash units. Soft light is produced by sources that are large relative to the subject, such as flash reflected from a wall or a photographic umbrella reflector. Whatever the light source, the closer it is to the subject, the softer the light; the farther it is, the harsher the light. Here, the main light source was a fairly small umbrella reflector around 12 feet from the subjects. The resulting light is intermediate between really harsh and really soft. *Photo by Lynne Eodice*



From the Archives

This is a photographic umbrella reflector. This one is attached to a studio flash head, but there's hardware available to hook one up to an off-camera shoe-mount flash unit, too.

Another simple and effective portrait setup is the side-by-side: Position one umbrella-mounted flash just to one side of the camera, and another less-powerful one just to the other side of the camera. *Photo by Mike Stensvold*

Slow-Sync & Rear-Sync

Slow-sync flash is a useful feature provided by most camera/flash systems. With slow-sync flash, the camera utilizes a slow shutter speed to properly expose a dark night background, while also properly exposing a nearby flashlit subject.

With most cameras, the flash fires at the start of a long exposure. This is known as "front-curtain" sync. If you make a long exposure of a subject that is moving across the frame, the flash will fire at the start of the exposure, then the ambient light will record a ghost image of the subject as it moves across the frame. In the resulting photograph, the ghost-image "speed streaks" will appear in front of the subject—not a natural effect.

Some cameras also offer "rear-curtain" sync, in which the flash is fired at the end of the exposure, just before the shutter closes. With rear-curtain sync, the ghost-image speed streaks will be recorded by ambient light as the subject moves across the frame, then the flash will fire to sharply record the subject at the end of the exposure. In the resulting photo, the speed streaks will appear behind the subject—a more natural effect.

Fill-Flash

Fill-flash used to be one of the most-dreaded problems in photography. But many of today's AF SLR cameras automatically balance flash and ambient-light exposures for perfect portraits day or night. Some even allow you to adjust the fill ratio—you can set the flash to overpower the ambient light or as a fill light to lighten the shadows.

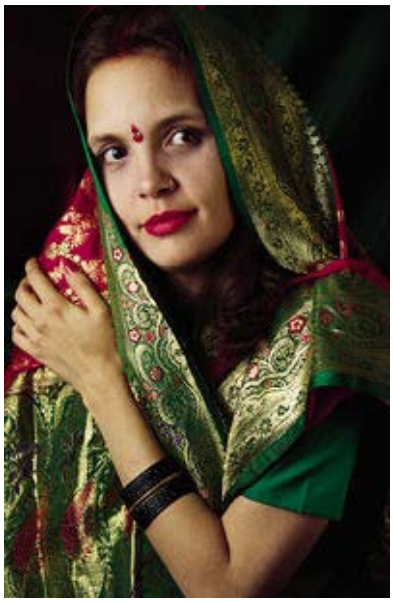
So that you'll understand the principles involved, though, here's how to do fill-flash the old-fashioned way—manually.

First, determine the exposure for the

Article Index

Page 1
Page 2
Page 3
Page 4
Page 5
Page 6
Page 7

One simple and effective "glamour" studio setup is the over/under: Position an umbrella-mounted flash (or a flash in a softbox) just above the camera lens, and have the subject hold a white reflector (a large sheet of white poster board will do nicely) below her/his face just out of frame. *Photo by Mike Stensvold*



For a more moody effect, try one umbrella (or softbox) mounted flash unit off to one side of the subject, with a large white card on the opposite side as a fill source. *Photo by Lynne Eodice*

Here, one light was used: a flash head mounted in a small umbrella, positioned about 12 feet from the subject next to the camera. Lighting doesn't have to be complex to be effective. *Photo by Lynne Eodice*

scene in the usual manner (using the camera's built-in meter or a handheld meter, whatever you normally use) and set the camera according to the existing light—let's say you get a reading of 1/125 at f/8.

Next, use the flash unit's exposure calculator to determine the flash-to-subject distance that calls for one stop more exposure—in this case, the distance that calls for an aperture of f/5.6. If you put the flash unit at that distance from the subject and shoot at f/8, the flash image will be one stop underexposed—a fill level that works well for a fill light.

You can set the flash so that it matches the sun's effect by putting the flash unit at the distance that calls for the same aperture as the sunlight exposure (f/8 in our example.)

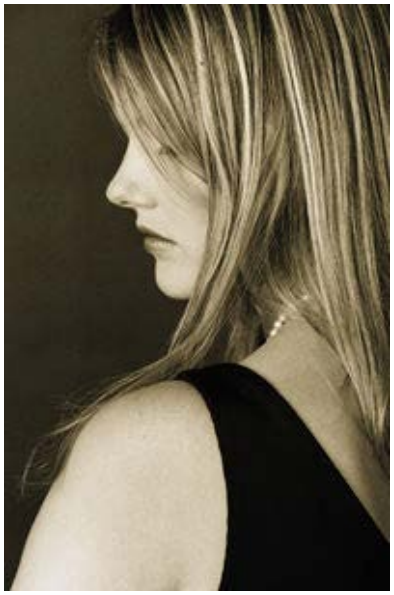
You can also use the flash as your main light, by putting it at a distance that calls for less exposure than the ambient-light exposure (f/11, for our example) and setting the lens to the flash-indicated aperture (f/11). This will result in a properly exposed flashlit subject against an underexposed (dark) background. This can be an effective way to play down a distracting background or to make the subject stand out from the background.

As noted earlier, many 35mm SLR cameras require shutter speeds of 1/125 or slower when used with electronic flash. If you're using fast film outside, you might not be able to use such a shutter speed (ISO 400 film requires a shutter speed of 1/400 at f/16 in bright sunlight; how do you shoot at 1/125 if your lens stops down only to f/16?). Solutions: Use a slower film or a neutral-density filter to permit use of the required slower shutter speed. Or use the camera/flash system's high-speed sync capability, if it offers this feature.

The required flash-to-subject distance might be different from the desired camera-to-subject distance when using fill-flash. Solutions: (1) Using a PC extension cord, move the flash unit off-camera to the desired distance; (2) move the camera and flash to the proper distance and use a zoom lens

to compose the image as desired (this will change the perspective, however); or (3) use the flash-unit's variable power settings (if it has them) to adjust the flash output to an appropriate level for the camera-to-subject distance.

You can use harsher, more directional lighting with male subjects. A single flash unit with a small umbrella reflector well to camera left provided a "masculine" lighting here. *Photo by Lynne Eodice*

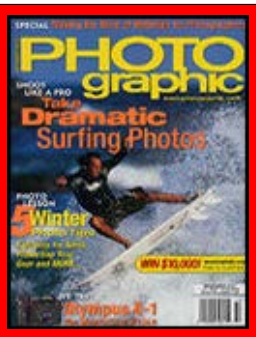


Soft frontal lighting is ideal for female profile shots. *Photo by Lynne Eodice*

Red-eye (in humans—with animals it could be yellow- or green-eye) occurs because the flash unit is too close to the lens axis. The only way to eliminate it is to move the flash unit away from the camera. Red-eye reduction features do reduce it, but also do

away with spontaneity due to the delay between shutter-button-pushing and exposure. *Photo by Jack and Sue Drafahl*

Go To Page 7



From the Archives

One neat flash technique is to combine it with a slow shutter speed outdoors, panning the camera to follow an action subject. The slow shutter speed blurs the ambient light exposure, while the brief flash duration freezes the nearby moving subject—a different effect than a straight available-light slow-shutter pan. *Photo by Bryan Nylander*

Many higher-end shoe-mount flash units have a repeating or "strobe" feature, in which flash can be set to fire several bursts in very rapid succession. This allows you to make strobe-effect photos. This technique works best in a large room with dark walls, or outdoors on a dark night, to keep the background from being overexposed by the repeated flash bursts. If you can move the flash unit off-camera, place it to one side of the subject (as done here) so it doesn't illuminate the background. *Photo by Mike Stensvold*

Off-Camera Flash

Direct on-camera flash is not the best lighting for portraits, because it casts an unattractive shadow on the backdrop behind the subject, provides little modeling of the face, is harsh and produces red-eye.

You can eliminate the shadow from the backdrop by moving your subject farther from the backdrop (the only solution with built-in flash units) or by raising the flash unit up high enough so that the shadow is cast down out of the picture area. Raising the flash unit has the added benefit of eliminating the flat, unexciting look of direct frontal lighting. Positioning the flash unit 45° to one side of the camera and 45° above it is a good starting point for the main light in flash portraiture.

Note: When you move the flash off-camera, remember to use the flash-to-subject distance, not the camera-to-subject distance read off the lens' focusing scale, for exposure calculations. Some of today's SLR cameras offer accessory off-camera TTL sync cords that let you move the flash off-camera yet still retain full TTL flash automation, and a few offer wireless off-camera TTL flash capability. These systems automatically handle the exposure for you.

Bounce Flash

You can soften the light by bouncing it from an umbrella reflector or other large white surface, such as a sheet of poster board or FomeCor. Umbrella lighting is attractive and forgiving—there are no harsh shadows to shout "bad lighting" at the viewer. If you have just one flash unit, bounce it and you'll be pleased with what you can do with that single unit.

If you don't have an umbrella reflector, you can bounce the flash off a nearby wall or ceiling. A white wall is a good

Because the flash burst is effective only for a relatively short distance, you can produce unusual flash effects by placing a colored filter over the flash tube to color a nearby subject, while the rest of the scene remains naturally colored. (Here, the highly reflective license plate picked up the flash, but the rest of the background appears normal.) *Photo by Mike Stensvold*

Painting with light is a fun technique. This lighthouse was lit with a single Nikon AF Speedlight shoe-mount flash unit. For the "straight" shot, on a dark night the camera was attached to a sturdy tripod, the shutter held open on B for 30 seconds with a locking cable release, and the flash was fired several times near the right side of the building, "painting" it with light. The flash was then moved to the other side of the building, the shutter opened for another 30 seconds, and the flash was fired several more times to paint that side. (Note: It helps to have an assistant when doing light-painting.) For the colorful shot, the same technique was used, but a blue filter was placed over the flash for the bursts on the right side of the building, and a red filter was placed over the flash for the bursts at the left side (where the flash beams overlapped, magenta appears). For the color-effect shot, a very-high-intensity flashlight was directed at the lighthouse lens for a third 30-second exposure on B. *Photo by Jack and Sue Drahfal*

choice, because it reflects side or side/front lighting, depending on whether you position your subject with the wall directly to one side or with the wall more in front. Ceiling bounce light generally comes from too high an angle to produce flattering people pictures, but is useful for providing overall illumination while eliminating the flat look of on-camera flash. Don't use a colored wall for bounce lighting—your subject will take on the wall's cast in the resulting color photograph.

Many shoe-mount flash units have heads that swivel and tilt for bounce lighting while retaining full TTL flash automation. If your flash unit/camera combination doesn't offer this capability, you can determine exposure for bounce flash (whether off a wall or an umbrella reflector) by using a flash meter, which reads the flash burst and tells you what aperture to use for the shot. If you use multiple-flash-unit lighting setups, the flash meter is about the only way to determine exposures (although some AF SLR cameras provide TTL flash control with multiple flash units, via special sync cords or wirelessly).

If you have to determine exposure for bounce flash manually, measure the distance from the flash unit to the reflecting surface and add this to the distance from the reflecting surface to the subject. Calculate the f-stop based on this combined distance, then open the lens one stop from the resulting exposure. And bracket exposures to compensate for variations in bounce surfaces.

Because bounce lighting increases the flash-to-subject distance, and some light is lost in the reflecting process, you need a fairly powerful flash unit to use bounce lighting.

Red-Eye

Red-eye occurs when the flash unit is too close to the lens. This causes the flash to reflect off the subject's retinas, right back into the lens. Large red spots in the eyes are the result in color photos (white spots in black-and-white).Red-eye has ruined many a portrait (be it of people or animals—

If your camera doesn't have multiple-exposure capability, you can still make double-exposure "twin" shots using your flash unit and a darkened room. Just set the camera up on a sturdy tripod, position the subject on one side of the frame, darken the room, open the shutter on B and fire the flash, then have the subject move to the second position and fire the flash again. The room has to be really dark, and this works best with a dark background. *Photo by Ron Leach*

with animals you sometimes get yellow-eye or green-eye).

The only way to eliminate red-eye is to move the flash unit away from the lens—above or to one side of the camera. Obviously, built-in flash units can't be moved off-camera, so most camera manufacturers incorporate a red-eye-reducing (not eliminating) feature, such as pre-exposure flash bursts that "stop-down" the subject's eyes to minimize the effect. While fairly effective, such pre-exposure bursts do affect the spontaneity of the image.