Multiple Flash

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Defining Light Intensity and Amount

- The behavior of light is not well understood by many photographers
- Candlepower: An intensity of light emitted by a standard candle
- Candlepower Second: An amount of light emitted by a candle for one second
- Footcandle: The intensity to which a surface is illuminated. One Footcandle is the intensity of illumination the falls upon the surface placed one foot from the candle
- Footcandle Second: The amount of light falling on a surface one foot from the candle during a one second interval.

Defining Light Intensity and Amount

- Beam Candlepower: The Beam Candlepower term measures the effective intensity of a light source when it is focused into a beam by a reflector or lens.
- Beam Candlepower seconds: The amount of light emitted by a source/reflector combination for a period of one second
- Guide Number: This is a measurement of power output an electronic flash. This power setting is measured at ISO 100 and is related to the f/stop used at 10’ to receive correct exposure. For example an electronic flash with a guide number of 160 the correct f/stop at 10’ would be f/16.

How light travels-Inverse Square Law

- This is basic law of physics
- The intensity of light falling upon a surface is inversely proportional to the distance between the surface and the light source. If the distance is doubled, for instance, the surface illumination decreases by a factor of four (2 squared). If the distance is increased tenfold, the surface receives only 1/100 as much light. Thus one candle placed two feet from a surface provides only ¼ footcandle of illumination

Exposure control with multiple flash's

- Remembering the inverse square law we must consider that doubling the light ot subject distance will result in not a one f/stop loss, but rather a two f/stop loss. To achieve a one f/stop change in intensity by moving the lights we must remember the square root of two in 1.414 or its reciprocal the square root of on half (.707). Thus increasing the light ot subject distance by 1.4 (say 10' to 14')will incur one f/stop loss while moving it in to 7' would increase subject illumination by on f/stop.

Battery Powered on Camera Flashes

- These are rated for power by guide numbers, the higher the guide number the more power.
- These are auto exposure flash units but most offer manual modes for full power output and variable power output
- Many have other automatic features that allow using them with other matched units.
- Keep in mind that when using diffusers or when aiming the flash away from a subject (referred to bounce flash) the effective guide number will change). Not a large problem with auto flash units but if they are set to manual modes it is

Studio Flash Systems

- These may be rated in either BCPS (Beam Candlepower Seconds) or with a guide number
- Many also have a modeling light
- Larger reflectors are usually used with them.
- Softer reflectors used with studio systems often mean that the BCPS may be lower than an equivalent power output in a portable flash unit.
- A typical light setup for studio units consists of three strobes.
- Almost all studio strobes have a variable power output.

Determining exposure with flashes set in manual mode

- By using the guide number for the flash you can determine the correct exposer by using the following:
- For ISO 100 and a guide number of 110 if your subject is 10’ from the flash (not the camera) your exposure would be f/11. In other words divide the guide number by the distance the flash is from the subject.
- An even better way and more accurate would be to purchase a flash meter.

Lighting for Digital Photography

- The are common misconceptions that digital photography requires less light than film, and that continuous lighting is preferred over flash for digital cameras. The fact is, digital cameras have the same lighting requirements as film cameras, unless one is willing to settle for lower image quality from the digital medium. For exaple if yo wish to shoot a scene using flash with a digital camera set for an aperture of f/8 and a ISO of 100, you will need exactly the same amount of flashpower that you would with film.

Lighting for Digital Cameras

- Continuous light sources instead of flash the trade offs are the same. Low light levels require longer exposure times. With electronic flash systems motion is controlled by the duration of the flash output and with continuous light by the duration of the shutter.

Why Multiple lighting

- Create an illusion of three dimensionality on a two dimensional sheet of photographic paper

Ambient Only Light

- Exposure set for outdoor light

Single Flash

- Flash place just to the left of camera and slightly higher at ½ power and bounced off of the ceiling

Two light set up

- In addition to the first flash the second unit is placed about 3 feet to the right of the camera. This is also bounce up but has a Stofen diffuser on it to throw the light in multiple directions

Three light setup

- This final shot has a third strobe added set to 1/8 power and is on the camera aimed straight into the scene. The main purpose of this flash is to fill in the shadows created by the first and second flashes and to trigger the units.

Final image

- This image is made by using the image with all three flash units and than layering in the available light image to pick up the glow from the lamps.

Equipment Choices

- Many photographers who use multiple flash units stay with the units made by their camera manufactures
- Some chose to use units made by independent manufactures in an effort to save money
- Just make sure you have system compatibility when you make your choise
- Matching flash units may be easier to work with with trying to balance your lighting

Nikon

- SB900 Nikons flagship model
- Guide number of 111 at ISO 100
- ISO Range 100-6400
- Optional Power Supply
- Wireless flash modes
- Wireless Com. Channels (4)
- Wireless Groups (3)

Nikon

- SB-R200
- Compact wireless remote speedlight
- Easy to adjust analog controls for creative flexible lighting
- Guide number of 33 at ISO 100

Nikon

- Su-800 Wireless Speedlight Commander
- Controls unlimited speedlights in up to three groups
- Wireless control up to 66 feet
- Built in autofocus assist to help auto focus in low light situations

Canon

- Speedlight 580EX Canon’s top unit
- Guide number 190 at ISO 100
- 14 Custom speedlight functions
- ETTL flash with all EOS digital PowerShot G model and PowerShot Pro 1 and most EOS film cameras

Canon

- Speedlight 430 EX
- Guide number 141 at ISO 100
- Compatible to all EOS cameras, both digital and film and Powershot G models
- May be used with the 580EX unit

Canon

- Speedlight Transmitter ST-E
- Compatible with most EOS models, PowerShot G models and all EX series flash units
- Used to control flash units remotely. Attached to hot shoe of camera.
- Has auto focus assist light

Other independent flash units

- There are many other flash units that are compatible to today's digital cameras.
- Check features that will fit your requirements