Flash Equipment

November 2014, Ian Whiting

Kiera, from Forest Owl

"I only use available light for my pictures, any light that is available I'll use it" Joe McNally

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Introduction

Following the club evening barn owl shoot workshop in November 2014 I was asked more than once about the flash equipment we used. This is a summary of my equipment and suggestions.

I must emphasize that this is my experience, I am not familiar with all the products on the market, there may well be better products for you.

This is not a lighting "book". There are lots more products, different ways of doing things and many valid arguments for and against my choices and methods. You may well have different requirements. This article addresses what I used for the barn owl shoot and why I chose these things.

I used one 300w studio light, an umbrella softbox, three lightstands, triggers, light meter and a reflector

Studio Light

The studio light was a **Lencarta UltraPro 300** with their standard reflector

http://www.lencarta.com/studio-lighting-shopfront/flash-heads/ultrapro-300-compact-flash-head_99

I find the Lencarta lights are well made and priced competitively. They use a **Bowens S** fitting that dictates the type of attachments that will fit the light. I find the Bowens S fitting to be the most common one available giving you a wide range of cheaper attachments (softbox etc)

I would say that a 300w light is the minimum power required. You could have a smaller light, say 180w or 200w, but there will be times when you will need more power. A 600w or 1200w would be even more useful. One can always turn the light down.

When a second light is purchased a 200w might be a good economic choice when it is only needed as a fill light.

The alternatives in the Lencarta range that might be considered are:

Lencarta ElitePro 300w. Less expensive. I chose the UltraPro as I could get a remote control to adjust the power of the light. I haven't yet bought one but I still might. It can be time consuming having to lower the stand, open the softbox (when it is inside a softbox), adjust the setting and put it all back again; after doing this a few times a remote control looks very attractive.

Lencarta Superfast allow very fast exposures, useful for freezing liquid motion.

Lencarta Safari and Atoms are battery operated so they can be taken out in to the field.

You might also consider a **Speedlite** (AKA standard hotshoe flash gun), e.g. Canon 600 ex-RT or Nikon SB-910. Far less powerful than a studio light but very versatile. Battery operated. Light and compact. Able to work in TTL (automatic) mode. Can easily be used in conjunction with a studio flash as it can be set to manual and slave triggered (triggered by the studio flash) as a background, hair light or fill light.

If a Canon or Nikon Speedlite seems too expensive do look at the YongNuo speedlites (search Amazon for examples). The YongNuo units I have seen appear well made for their price. A manual version costing £48 could be all you need, see Manual or TTL section below.

My flashguns are made by Sigma which are 30% the price of an equivalent Canon original. They are TTL compatible and are 90% Canon compatible. YongNuo units at half the price of Sigma.

Umbrella Softbox

The units you fit to the light are called *modifiers*. These come in various forms. The least expensive is the versatile umbrella, softboxes are very popular and beauty dishes can be good for some portraits.

A softbox is normally used to "soften" the shadows and good for portrait shoots. They come in various shapes and sizes. The larger the box in relation to the subject the softer the shadows.

My umbrella softbox was bought from the inexpensive supplier www.smick.co.uk . A good standard rectangular softbox is more versatile but more expensive. The umbrella mechanism makes it easy and quick to assemble. A circular softbox (as my umbrella version is) gives a round catchlight in the eye which some prefer to a square one (round hints at the sun, a square hints at a window)

An plain umbrella modifier (as opposed to an umbrella softbox) tends to throw light over a wide arc. The softbox gives more light control. Both have their uses but a softbox is generally more useful.

Beware cheap silver or gold reflective umbrellas, the coating flakes off over time.

Lightstands

The Lencarta lightstands I use have spring or air cushions. This is useful to cushion the light should it be lowered in the stand too quickly. Cheaper stands have no cushion. The Lencarta light stands are not too expensive and are well made.

I used two stands to hold the backdrop and one for the studio light. If I don't need a backdrop I can use the lightstands to hold another light, e.g. speedlite, as a fill light.

Triggers

I could trigger the light using a cable (simple and reliable but limited to cable length and a trip-up hazard.) I used a cheap radio trigger from an Amazon supplier. It had one transmitter unit that fits in the camera hotshoe and a receiver to attach to the studio light or speedlite. When the camera fires it causes the transmitter to send a signal to the receiver to trigger the flash.

When I purchase a replacement trigger unit I would buy a YongNuo set. I have seen one of these and they look very well made.

The above triggers only work in "manual" mode, not TTL. Most studio lights are manual only. Some more expensive triggers will also work in TTL mode provided you use the manufacturer's own flash guns.

Radio triggers can be affected by external radio interference, walls or distance.

Some modern cameras allow the pop-up flash to control the remote speedlite. The studio flash can be set to "slave" mode and be triggered by the speedlite. This means you may not need to buy a radio trigger unit (there are times when this will not work and a separate radio trigger is needed.)

Light Meter

This is set in flash mode and indicates how much light is reaching the subject. This is an enormous help in the studio. You can work with the camera's histogram or trial and error but a flash meter makes it much quicker and more accurate.

A light meter will:

- tell you instantly which aperture to use
- how many stops to adjust the light
- read the incident light which can be more "consistently accurate" than the reflected light reading used by the camera meter
- balance a multi light set up, e.g. you might want the fill to be 2 stops lower than the key light
- tell you how much light is falling on all areas of a background so you can make them equal or graduated
- tell you how much light is bouncing off the background and hitting the back of the subject (too much light makes the hair line go "fuzzy" instead of crisp)

I have an old Sekonic meter. Sekonic are considered to be the standard meter. A meter lasts many years. For flash/studio work it needs to have a "flash" setting, most digital meters have this. The basic Sekonic model (L-308S) at around £150 will do most things you need.

Reflector

Reflectors are the cheapest "lights" you can buy. Purchase some 5 in 1 types and you can have white, black, gold, silver and translucent lights and quick backdrops.

The white, silver and gold sides will reflect light back into the fill side as we were doing with the barn owl.

The black can be used as a background, to subtract from a bounce or act as a flag (block stray light from reaching other parts of the set.)

The translucent screen is great as a makeshift large softbox, just hold it a couple of feet in front of a studio light or speedlite. It can also be used to shade and soften sunlight outdoors.

If you don't have an assistant to hold the reflector you can purchase an "arm" to attach to a light stand and hold the reflector at any angle.

Basics of Flash Lighting

- Most dSLR cameras synch at 1/200 or slower, I always suggest 1/160 is good for most
- Most electronic flash fires at 1/700 sec or faster. Expect much faster speeds when on a lower power setting, e.g. 1/8
- The ISO and aperture control the flash exposure
- If the picture has a dark band at one edge of the image it may well mean your exposure setting is too fast (faster than the synch speed) E.G. if at 1/250 try 1/160.
- The shutter speed only controls the ambient light (this is important to know when using flash in strong room light or daylight, e.g. fill-in the shadows in sunlight)
- A large light source, e.g. softbox, gives a softer shadow
- As the light source moves away from the subject it gets relatively smaller to the subject making harder shadows
- Every time the distance between the subject and the light source doubles you only have 1/4 of the light, i.e. at f/11 and 2 feet but you will need f/5.6 if the light is moved to 4 feet away (2 stops) and f/2.8 (another 2 stops) at 8 feet (known as the "inverse square ratio".)
- In TTL mode speedlites fire two flashes almost instantaneously. The first, called a pre-flash, is used by the camera only to measure the exposure. The second flash is when the picture is actually taken. This pre-flash can trigger secondary flash guns when set in "slave mode". This will mean they are already over and do not have any affect when the camera takes the real shot on the second flash. Some units have an option to ignore the pre-flash.
- If the subject is moving see how setting "rear curtain synch" may affect the shot (search Google for details.) Example, red lights will trail behind a vehicle.
- Tip: place the light very close to the subject and with the right settings the background will go black, even in daylight if the flash is powerful enough
- Tip: set the speedlite to 1/128 power for very fast flash duration (e.g. 1/3200 sec) to freeze motion, e.g. water droplets, in the dark, even though the camera is only set to 1/160 sec
- Flash guns have a recycle time between flashes; speedlites can be up to 4 or 8 seconds, studio lights are much faster. The lower the power setting the faster the recycle time.

Power Specifications

Watts

Studio lights are typically usually rated in watts, e.g. 3oow. A speedlite is normally rated as a guide number, e.g. GN = 56.

A watt is a unit of energy consumed and represents the amount of energy it takes to operate the light at full power. However this is not the same as the amount of light it gives out, that depends upon how efficient the light is. Thus a 300w light from one manufacturer could be much brighter than a 300w from another company.

A studio light should also specify a guide number.

Guide Number

A guide number is a better way to compare different lights providing the parameters are the same, sadly this is not always the case.

The guide number indicates the amount of light output and is the aperture multiplied by the distance. Thus a flash gun with a guide number of 56 means it gives enough light to use an aperture of f/5.6 at a distance of 10 feet (10 times 5.6 = 56)

BUT when comparing guide numbers you need to know whether the GN is listed in feet or metres, at what ISO setting and in the flash zoom setting. Obviously feet and metres makes a big difference and at ISO 200 the GN will be quite different to that at ISO 100. Also if the flashgun is in telephoto mode, e.g. set for a lens focal length of 110mm then the light will be more concentrated in a narrower beam. Marketing departments are well aware of this and may quote a GN in feet, ISO 200 (or even 400) in 200mm mode to make their flash gun appear more powerful than it is.

From the manufacturer's own specifications...

> A Canon 600EX-RT has a GN of 60 in metres, ISO 100 at 200mm
>
> A Canon 430EX II has a GN of 43 in metres, ISO 100 at 105mm
>
> A Nikon SB-910 has a GN of 48 in metres, ISO 200 at 35mm

I'll leave that up to you to compare the differences!

By way of comparison the Lencarta 300w light lists a guide number of 49 metres at ISO 100 with a standard reflector which means the light is spread over a large area, if it were fitted with the equivalent of a concentrated telephoto lens this would be a much, much higher GN. Typically the 300w light will be the equivalent of using multiple (4 to 8?) speedlites.

Recycle Time

Similarly recycle times (how many seconds it is before it can fire again) are not always easy to compare. Some will list the time at full power and others will only list the time at some fraction of full power. Typically at full power a speedlite will recycle from 4 to 8 seconds, a studio light like the Lencarta 300w is about 1 second. At a fraction of full power most flashes recycle faster.

Duration

One more important number is the flash duration. Although the flash will fire very nearly instantaneously it does not stop instantly. It can take a finite time to fade. If it is slow to fade more light will be reaching the subject for longer.

I have mentioned an example flash duration of 1/700 of a second. This is usually the stated duration at T.5 which means how long the light lasts until it is 50% as bright. However even 50% of the light may still be recorded by the camera. A better specification is the T.1 figure which is how long the light takes to drops to just 10% of the maximum. This is often one third the t.5 value.

For example, A speedlite that lists 1/700 at t.5 will be more like 1/200 at t.1. Lencarta flash duration at full power, t.5 is 1/2500th sec thus t.1. is probably 1/800th sec. Speedlites and studio flashes have shorter durations when running at a fraction of full power.

Manual or TTL

Most people when they first buy an external speedlite think that TTL (automatic) mode would be the best way to go. I argue that it is not the best thing to start with. Surprisingly manual mode is often easier to use.

TTL (through the lens) automatically sets the camera to the "correct" exposure for every shot. This can be very useful when taking pictures in a fast changing environment, e.g. children at a party.

It has two serious disadvantages.

1. It requires to be "tethered" to the camera. This could be by an expensive, compatible radio trigger (note you do need to carefully match the camera and speedlite for this to work), a short cable or more likely on the camera hotshoe. Putting the flashgun on the hotshoe can flatten the light, cause ugly shadows and rarely gives as good a picture as one where the light is separated from the camera by a few feet.

2. Each picture is a new "exposure guess" by the camera. You can never be sure if it will over or under expose the shot. It is influenced by how much light is being reflected back. You can take the shot again after adjusting the flash exposure up or down a stop or two but the camera may not see the identically reflected light on the second shot.

Manual mode means setting the flash gun light level and camera settings first. Once they are at an acceptable setting everything stays constant and you can concentrate on taking the shots. If the light to subject distance changes then change the camera aperture, ISO or flash gun light level accordingly and keep on shooting.

Manual mode means cheaper wireless triggers can be used. Some recent cameras allow the pop-up flash to control the light levels of the remote (manufacturer's own) flashgun in both manual and TTL modes which is very useful and no wireless trigger is required.

Resources

A few resources that are worth exploring

David Hobby (The Strobist) has a series of web pages that take you through using flashguns. An advocate of keep-it-simple and inexpensive. Free	http://strobist.blogspot.co.uk/2006/03/lighting-101.html http://strobist.blogspot.co.uk/2007/06/lighting-102-introduction.html
Zack Arias. Excellent DVD tutorial, One Light $75. An advocate of keep-it-simple and inexpensive.	http://dedpxl.com/
Joe McNally. An advocate of multiple speedlites and TTL. Excellent video, Language of Light, but more expensive than some others	http://www.joemcnally.com/blog/the-language-of-light/
Scott Kelby and KelbyOne. Online videos from some good instructors, including Joe McNally. $250/year	http://kelbyone.com
Glyn Dewis. Photoshop and lighting instructor. Lots of free videos on his You Tube page	http://glyndewis.com/
Adorama TV, many free video tutorials on their You Tube page, try the Gavin Hoey series "Take and Make", Mark Wallace "Exploring Photography" and Joe McNally "Photo on the Go"	https://www.youtube.com/channel/UC8Pksdbj37CdE00kmE7Z1dw/videos http://www.adorama.com/alc/category/AdoramaTV-Take-and-Make-Great-Photography http://www.adorama.com/alc/category/AdoramaTV-Exploring-Photography http://www.adorama.com/alc/category/AdoramaTV-Photo-on-the-Go
Gavin Hoey	http://www.gavtrain.com
Creative Live. Training videos, watch live when being created or purchase later. See the Zach Arias, Mark Wallace and Don Giannatti videos. Typical price around $130 for 18 hours of videos (filmed in real time so they do not always move along as fast as some videos might, they are supposed to feel like you are sitting in the classroom with them)	https://www.creativelive.com/ https://www.creativelive.com/catalog/category/photography?qt=instructors&price=0&sort=1&page=1&upcoming=0&qd=Mark%20Wallace https://www.creativelive.com/courses/zack_arias https://www.creativelive.com/courses/lighting-essentials-don-giannatti
Syl Arena. Lots of good articles	http://pixsylated.com/blog/category/speedliting-small-flash/

Frank Doorhof (good videos and articles re studio lighting and light meters)	http://www.frankdoorhof.com/site/
Lencarta training videos (free)	http://www.lencarta.com/studio-lighting-blog/category/studio-lighting-tutorial/