

Understanding Speedlite Flash

Especially written for Canon EOS users



By Nina Bailey

Introduction

Photographers so often reach for a flashgun only when they run out of light. However, flashguns are so much more useful than that, as they can also provide additional fill-in flash lighting in brighter light levels which can add sparkle and overcome many common exposure problems.

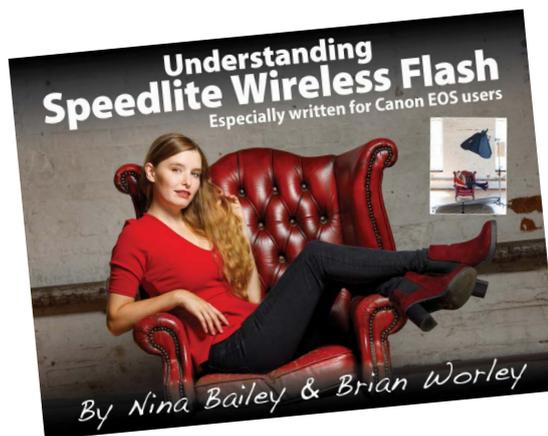
Flash is often seen as a bit of a black art by many photographers, the Canon flash system is actually very simple to use. However, the reality is that it's different to shooting just with ambient light. To start with you don't see the flash until after you've taken the image.

There are also several things that change the way the camera is working, the moment we put a flashgun onto the camera, and so as always understanding what's happening is very key to getting good results.

This book will take you through all the things you need to understand to get superb flash images, as well as inspiring you to use flash in a wider range of conditions. The book starts off with a reference section looking at some of the key basics that you need to understand when using flash to give you the grounding to understand what we're talking about in the rest of the book.

We take look at the options you have within the Canon flash system and look at where the different flashguns are appropriate, including the macro flashguns. We also look in depth at the wide range of features that the flashguns offer and how these are used in practical shooting situations.

We also have a complimentary book called understanding wireless Speedlite flash which looks at taking flashguns away from the camera using Canon superb wireless flash system.



Written, designed and images by Nina Bailey

www.ninabailey.co.uk

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About the



Nina started her own business in 1999, concentrating on training for amateur photographers. In 2014 Nina started producing her own range of ebooks to bring photography training to an ever wider audience. Nina writes, shoots, produces all graphics and designs all the layouts of the books herself and this gives her a very good in-depth understanding of all the processes involved in producing digital images and how they are used. In Summer 2015 Nina was appointed as Technical Editor of EOS Magazine, a role that she is doing in addition to her active role as the principal lecturer for the EOS training Academy and writing her ebooks.

Nina started taking images when she was very young and is still a very keen photographer both professionally and personally. Nina loves travel, landscape and wildlife photography. Most of the images she now shoots are for her own picture library for use in the books and articles that she writes.

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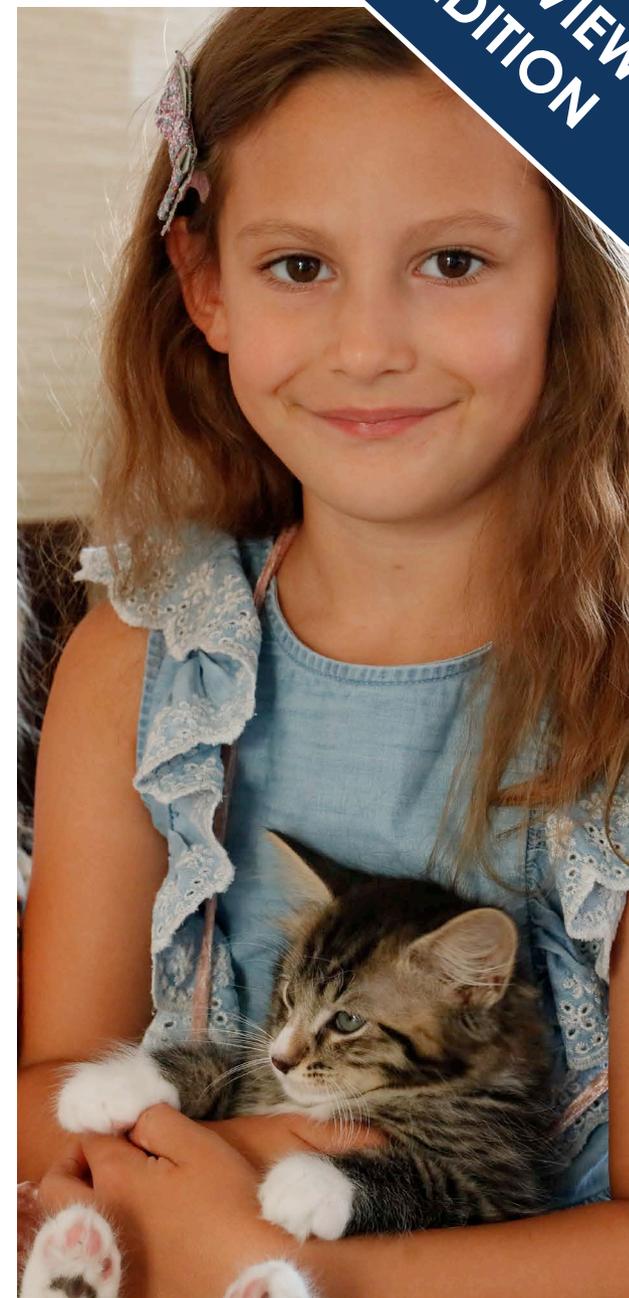
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Understanding flash



There are two things that show up quite significantly from the image above, the first is how quickly the light falls off behind the subject, in this example the flash was only about 50cm in front of our subject, literally just out of the shot to the left.

So, by the time we get to a couple of metres away the background almost receives no light. It also shows that flash outputs to an angle you can see the image start to fall off at the top left and bottom left corners due to the angle that the flash is outputting the light.

The image also shows up quite well just how harsh flash lighting can be. Obviously the image above

was taken with the flashgun off camera.

Therefore when we shoot with Flash, there are some fundamental rules that we have to accept. Most of the problems that we see with flash are caused by photographers ignoring these fundamental facts about flash.

RULE 1 - ONE FLASH ONLY LIGHTS 1 DISTANCE

The most important fact about flash is illustrated by the image above. If we have a single flashgun it will only light one distance correctly. Behind that distance the flash will fall off and as you can see from the image above it will do so rapidly.

There is a rule of physics that governs flash and rules of physics are absolute. If you double the distance from the light source (the flash head) you quadruple the area lit, but quarter the power.

Daylight also abides by this rule, but the sun is 93 million miles away which means we don't see the effect of it when shooting with daylight. The closer the flashgun is to our subject the more we will see the effect of this reality.

So if lighting the subject with a single flashgun and we are shooting just with flash light, unless the subject is very close to the background, the background will be black or very dark.

Understanding flash

RULE 2 - TO GAIN POWER USE A REALISTIC ISO

There are many things you can do which will reduce the power that the flashgun is giving you. Adding a diffuser, bouncing the flash, shooting outdoors, using a narrow aperture and using a feature called high speed flash sync will all significantly affect the power your flashgun can give.

The only things that will increase the power output from the flash will be to shoot with a very wide aperture or to increase the ISO.

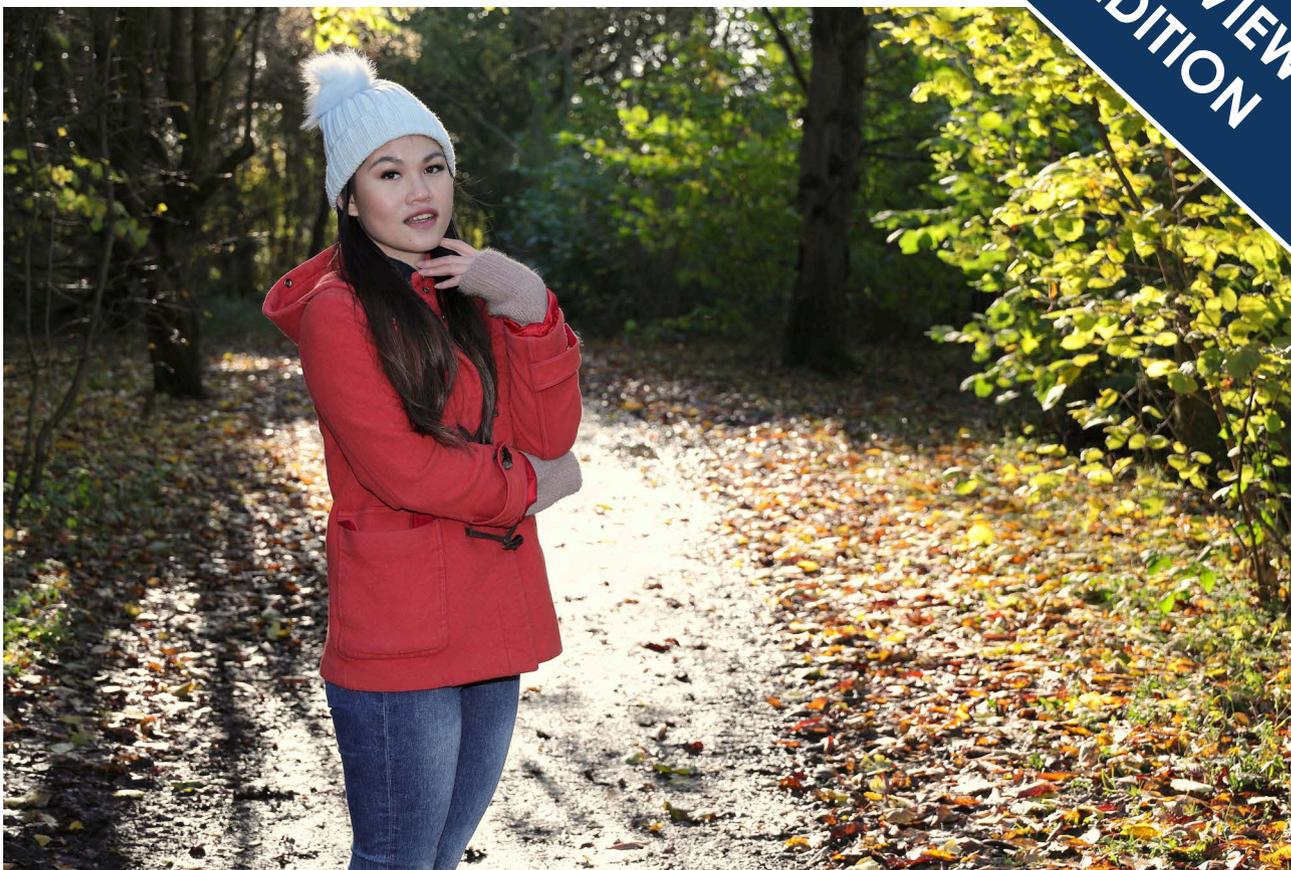
RULE 3 - USE AS MUCH AMBIENT LIGHT AS POSSIBLE, UNLESS YOU WANT A DARK BACKGROUND, UNLESS USING FLASH TO LIGHT THE BACKGROUND

It may sound strange when talking about flash, to say use as much ambient light as possible, but it is the key to getting good flash images.

A single flash only lights one distance and so if we shoot only with flash our backgrounds will go dark, or in low light black.

The advantage with using ambient light is it provides lighting for the background and softens the effect of the flash when we start to shoot with fill-in flash, not flash as a primary light source.

Even when shooting inside we can utilise ambient light by simply increasing the ISO which will capture more of the light that is present and therefore give us a more pleasing image.



RULE 4 - THINK ABOUT THE AMBIENT LIGHT LEVEL

It is important to think about the ambient light level especially if shooting outside.

If it is very bright then it can cause problems with some settings that we may choose. Your shutter speed is limited by the camera's sync speed, this will either be 1/180, 1/200 or 1/250 depending on the model that you have. This will be the highest shutter speed you can shoot at, unless you enable

high speed sync mode on the flashgun. If we are shooting in bright light this restricts our ability to use the wider aperture's and requires the ISO to be kept low.

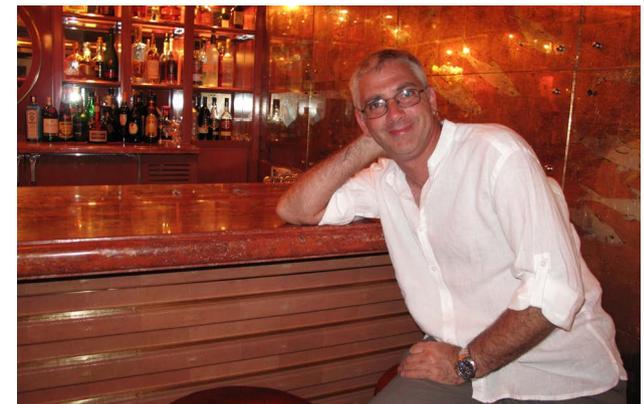
On the image above flash was used to light the model, the rest of the lighting was the ambient light. The model was positioned in the shade, and facing away from the light to minimise the contrast problems and to get good facial expressions.

Ambient light and flash light

When we start talking about the Canon Speedlite flash system, you will hear the term ambient light crop up a lot. Therefore, I feel it's important to define what we mean by ambient light. Some photographers may refer to it as available light but it's basically any light that is not provided by the flashgun. Many photographers think about ambient light as purely being daylight, but it can be any other type of light including artificial light. So ambient light can be the light on a bright sunny day or of course an overcast day. If we're shooting indoors it can be the artificial light that is present to which we can add flash light. It can even be the light that is outside illuminating buildings or street scenes.

The Canon flash system is designed, when it is on its default E-TTL flash exposure mode, to consider any other light that is present, providing you are shooting in an appropriate exposure mode. That can be P, TV, AV or FV mode, so how much ambient light will be captured will depend on several things, which I will explain as we go through the book. The exception is manual mode as in this mode you choose how you want the ambient light to be captured, so it can be set so that you capture the light in the background or you can set the camera up so you eliminate any ambient light that is present and shoot purely with flash.

So essentially when we are shooting flash within the Canon system we are mostly going to be shooting two pictures at the same time, the one taken with ambient light and then the one taken with flash, as in all the images on this page.



Camera settings for flash

The moment that we start to shoot with flash lots of things change. It is these changes that often confuse newcomers to the flash system.

One of the important things to realise when we start shooting with flash, if we are shooting outside or inside, but utilising ambient light, is we are taking two pictures in one. We are taking the ambient light which is the same as when taking an image without flash and then we are adding the flash exposure on top of that.

The images to the right show how much difference there can be between the ambient and then the shot with flash light added. In the top two pictures the subject is inside a building with openings behind them and so if we expose for the outside area the subject will reproduce as a silhouette, if we are shooting with just ambient light. If we add flash to the exposure, then we can get both the subject and the background correct. This is where the use of flash is much more obvious as it produces a very big difference in the result.

The bottom two images are again taken with and without flash and there is a difference between them. However, it is more subtle. That's because the image was taken outside in good lighting and so even with flash, the majority of the picture is being taken with ambient light, the flash is then simply adding illumination to fill-in the shadow areas and add a bit of sparkle to the shot. Therefore, this type of flash is called fill-in flash.

A lot of photographers expect fill-in flash to be



difficult. However, it's what the camera's designed to do automatically. So, shooting on an semi-automatic exposure mode such as AV mode and leaving the flash on its default automated E-TTL II flash exposure mode, the two devices will work together to give you a correctly exposed shot with no adjustment needed.

The more difficult of the two shots to capture is actually the top right hand image, generally for this type of shot we need to work on manual exposure mode for the camera and generally the flash will

get the subject right if working on the E-TTL II flash exposure mode. However, we may need to use a little bit of flash exposure compensation just to help it out on some shots.

All of this means that when shooting with ambient light present, we have two sets of rules that we need to abide by. We have the rules imposed by the ambient light and then we have the rules imposed by using flash. When shooting in bright light you will find that the rules imposed by using flash can cause several problems, which can result in over

Camera settings for flash

exposure of the subject. Therefore, the settings that we can choose are restricted when using flash. So it is important to understand how the settings that we use on a regular basis, the ISO, the aperture and the shutter speed change in their usage when we start to use flash.

Shutter speed

The first item I want to talk about is the shutter speed. This is the item out of the three key settings that catches the most photographers out, as it changes the most.

It is important to realise that the shutter speed is only affecting the ambient part of the exposure. However, flash has a maximum sync speed or X sync, which is the point at which the shutter is fully open to allow the flash to expose. Above this maximum sync speed, the shutter traverses the frame as a slit and this makes it difficult for flash to illuminate the whole frame. It is possible to go above this maximum sync speed, but to do so we need to use a feature called high speed flash sync.

I will look at flash synchronisation in more depth shortly when I look at the various synchronisation modes, as it is important to understand how the shutter is working and why this causes the problems.

The chart to the right shows you the maximum sync speed that the various EOS models can go up to, shooting in the normal flash mode. Have a look to see what the sync speed is on your model, as you're going to need to know and remember this as you start to shoot with flash outdoors.

It is possible to go higher than this on the shutter speed, however to do so we have to enable a flashgun mode called High-speed flash synchronisation. Enabling this and taking the shutter speed up has significant implications upon the power of the flashgun that you are shooting with, more about that later. So outside in bright light levels it can be vital to keep the ISO down to minimise the problems from the brightness of the ambient light which will cause the shutter speeds to go too high.

So when shooting with flash we are normally aiming for shutter speeds somewhere between 1/60 and 1/250 as the normal shutter speeds we are shooting at, to try and avoid the use of the High-speed flash synchronisation. However, that can be easier said than done especially if we want to use wide aperture settings for better background blur.

Camera flash comparison

	Max X sync speed		
EOS-1D	1/500	EOS 400D/Rebel XTi	
EOS-1D Mark II	1/250	EOS 450D/Rebel XSi	
EOS-1D Mark II N	1/250	EOS 500D/Rebel T1i	
EOS-1D Mark III	1/300	EOS 550D/Rebel T2i	1/250
EOS-1D Mark IV	1/200	EOS 600D/Rebel T3i	1/200
EOS-1D X	1/250	EOS 650D/Rebel T4i	1/200
EOS-1D X Mark II	1/250	EOS 700D/Rebel T5i	1/200
EOS-1D X Mark III	1/250	EOS 750D/Rebel T6i	1/200
EOS-1Ds	1/250	EOS 760D/Rebel T6s	1/200
EOS-1Ds Mark II	1/250	EOS 800D/Rebel T7i	1/200
EOS-1Ds Mark III	1/250	EOS 850D/Rebel T8i	1/200
EOS 5D	1/200	EOS 1000D/Rebel XS	1/200
EOS 5D Mark II	1/200	EOS 1100D/Rebel T3	1/200
EOS 5D Mark III	1/200	EOS 1200D/Rebel T5	1/200
EOS 5D Mark IV	1/200	EOS 1300D/Rebel T6	1/200
EOS 5DS	1/200	EOS 2000D/Rebel T7	1/200
EOS 5DS R	1/200	EOS 4000D/Rebel T100	1/200
EOS 6D	1/180	EOS D30	1/200
EOS 6D Mark II	1/180	EOS D60	1/200
EOS 7D	1/250	EOS M	1/200
EOS 7D Mark II	1/250	EOS M2	1/200
EOS 10D	1/250	EOS M3	1/200
EOS 20D	1/250	EOS M5	1/200
EOS 30D	1/250	EOS M6	1/200
EOS 40D	1/250	EOS M6 Mark II	1/200
EOS 50D	1/250	EOS M10	1/200
EOS 60D	1/250	EOS M50	1/200
EOS 70D	1/250	EOS M100	1/200
EOS 77D	1/200	EOS M200	1/200
EOS 80D	1/250	EOS R	1/200
EOS 90D	1/250	EOS RP	1/180
EOS 100D/Rebel SL1	1/200	EOS R5/Elec Shutter	1/200/1/250
EOS 200D/Rebel SL2	1/200	EOS R6/Elec Shutter	1/200/1/250
EOS 250D/Rebel SL3	1/200		
EOS 300D/Rebel	1/200		
EOS 350D/Rebel XT	1/200		

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About flashgun selection

In the rest of this chapter I want to take a look at the various flashguns that you may come across and talk about what they are and are not suitable for. I'm also going to include just a little bit about their compatibility with the wireless flash system as if that does interest you need to understand which flashguns are compatible with which parts of the wireless flash system. There is the older optical wireless flash system and then the newer radio wireless flash system.

I am also going to include sections on some of the older flashguns, after all your not going to go out and buy a new flashgun just because of this book if you've got one, you want to use the one you have. But you do need to know depending on the age of it what that model can and cannot do.

I mentioned earlier that flashguns do stay in the market for a very long time and so it's possible you only bought a flashgun a few years ago but it could be 7 or 8 years old in design. This can make a big difference in how it works with things like the camera menus.

I am also going to list the customisations that the flashguns have. Yes, the flash comes have custom functions as well and they have something called personal functions. These are not used as much as the camera options that we're familiar with, however they can allow you to turn on and off some useful features.

I will look at the custom functions that get used a lot later in the customisation section in the book,



but this allows you to look up which ones your flashgun has got on it.

One of the things you will no doubt be familiar with on the camera's is how similar one model is to another these days. The same cannot be said of the flashguns, two of the current models are shown above showing just how different they can be when it comes to setting them up. The one on the left is the EL 100 and on the right is the 600EX RT II model.

I am not including the third-party guns in this



section there are far too many of them. However, if you look up the one that's got the nearest name to the third-party flashgun it generally works almost identically.

The flashgun on the previous page is the clone of the flashgun on the right above which is the 600EX RT II as shown on this page. The colour the LCD panel lights up varies a little bit but you'll see that the buttons and the menus are virtually identical.

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Speedlite 600EX RT II

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The Speedlite 600 EX RT II, is the flagship flashgun in the range and is the most powerful within the range. This flashgun has the power to cope with almost any subject or application. This model superseded the 600EX RT model back in 2016 and is virtually identical.

The reason for the update is that this model can fire 50% more flashes continuously, then it's predecessor. So, it performs much better if you need to shoot bursts of images with the drive set to continuous.

The flash head bounces and swivels and has a built-in wide angled panel which allows coverage down to 14mm and has a little reflector panel for catch lights. When the flashgun is used on camera it has an auto zoom function which senses the lens in use and sets the zoom head to match the focal length. If being used on one of the smaller sensor models then it will sense this and adjust the focal length of the head to match accordingly.

This flashgun also offers better moisture and dust sealing than other flashguns within the range making it more suitable as a flashgun to use outside in a wide variety of conditions.

The flashgun comes supplied in a kit with some coloured filters which clip over the flash head to allow you to correct the orange cast that you sometimes get shooting in artificial light. We look at that in more depth later in the book. It also has a diffuser to help soften the light output together with a stand to put the flashgun on and a case.



Guide No. (ISO100).meters	15m
Zoom head	14mm
Focal length coverage	20-200mm
Coverage with wide panel	14mm
Auto zoom for sensor size	Yes
High speed sync (FP)	Yes
Manual / output settings	Yes - 1/1-1/128
Manual steps	1/3 step
FE lock	Yes
Flash exposure compensation	Yes
Flash Exposure bracketing	Yes
Second-curtain flash sync	Yes
Modeling flash	Yes
Transmitter	Yes
Transmission type	Optical / Radio
Transmitter Optical/Radio Max range approx.	
	Indoors: 0.7-15m/30m
	Outdoors: 0.7-10m/30m
Receiver	Yes
No of groups	3 Optical / 5 radio
No of channels	4 / 15
Remote Shutter Release	Yes
Power	4 x AA batteries

Flash Coverage (mm)	14	20	24	28	35	50	70	80	105	135	200
Guide number meters/100 ISO	15m	26m	27m	28 m	34m	39m	46m	49m	54m	57m	60m



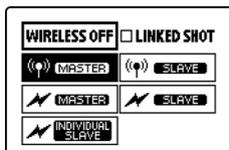
- Optical wireless flash
- Radio wireless flash
- Sender / Master
- Receiver / Slave
- Supports radio flash groups
- Supports camera menu setting

Speedlite 600EX RT II

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LINK LIGHT this lights up green to indicate when using radio flash that the flashguns are communicating with one another. This has no function when using the flashgun on camera.

WIRELESS BUTTON when the wireless button is pressed it brings up a menu (shown right) that allows you to choose the function that the wireless flash is going to work in. There are options for the flashgun to work as radio or optical wireless flash and to choose a master or slave set up. There is also an option for individual slave. The wireless button has no function if you are using the flashgun on camera for normal flash usage.



MODE BUTTON pressing the mode button allows you to scroll between the various modes that the flashgun offers. When using the flashgun normally on the hot-shoe, it is most commonly used in its E-TTL setting which allows the camera to adjust the exposure automatically for the flashgun. The other modes are mostly used if the flashgun is being used off camera within the wireless flash system.

The options on this flashgun are E-TTL, M, Ext A, Ext M and GRP. The modes that are available depends upon how the flash is being used. We will look at what the different modes do in depth, with the exception of the GRP mode which is only applicable to Radio wireless flash, later in the book

FLASH READY LIGHT this lights up red when the flash is fully charged. It comes up green if the



flashgun is partially charged so that a quick flash can be fired (if enabled) at partial power. If you want to test the flash output pressing this button will do a test fire. There is an option within the custom functions for this to be 1/32 power which is the default or to be full power.

MENU BUTTONS underneath the LCD screen there are four buttons, and these are used to access the item shown above them. Button 1 is zoom and custom function. Button 2 sets flash compensation. Button 3 sets flash exposure bracketing and button 4 allows setting of sync settings. When a button is pressed it will bring up options on the rear screen and you then use the dial on the back of the flash and the sel/set button to set the options within the menu.

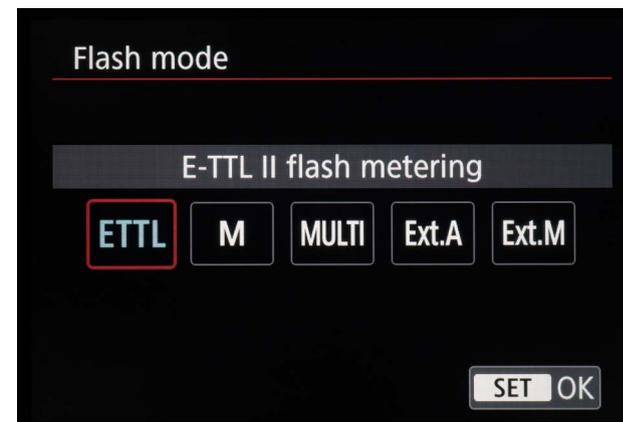
The display that is shown to the left are the options that you have available when using the flash as a stand alone flashgun mounted on the camera body. If you use the wireless button to activate any of the wireless settings then the flash menu becomes adaptive and changes to show the commands you need for wireless flash operation.

ON/OFF SWITCH this allows the flashgun to be turned on and off. In the centre there is a lock option, and this prevents any of the settings on the flashgun from being changed.

FLASH CONFIRMATION LIGHT this lights up green for a couple seconds after a picture has been taken by flash to indicate that as far as the camera is concerned a correct exposure has been achieved. If it does not light up it's normally indicating the flashgun does not have enough power for the image you are attempting to take.

Exposure modes vs Flash exposure modes

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It is important to realise that the flashgun has exposure modes in exactly the same way as the camera has exposure modes. You have the option to mix and match these according to how you want the flash to be used.

If I'm talking about the camera exposure mode which is what the rest of the chapter is about, then I am talking about the modes that are set on the mode dial on the top of the camera as shown above or possibly on one or two models by pressing the mode button on the top of the camera and then setting it on a menu screen, This method is found on some of the EOS R series models and the 1D series.

Most of this chapter is going to be about creative modes, so P, TV, AV, FV, Manual and of course the custom modes, if the camera features them. I am also going to include a little bit right at the end about what happens in the Auto+ mode depicted on the dial above with the green icon and the scene modes depicted by the letters SCN.

The flash exposure modes are viewed on the rear the flashgun and I've highlighted on the rear panel above where the flash mode will show up. The main flash mode that we use is called E-TTL or E-TTL II to give it its full title. It changed in 2004 from E-TTL to E-TTL II when they changed the method of metering within the camera. You will find that both terms appear, but on any camera since 2004 it will only work on E-TTL II, even if it is showing E-TTL. In fact where I have highlighted it on the screen that's how it always shows, just E-TTL.

It is possible to set the flash mode from the rear of the flashgun, all we have to do is to press the mode button and it will cycle through the options available on that flashgun. The more common place to set the mode is in the flash function setting menu as shown above right. When you bring the flash options up on the rear screen, the top left item again is the flash exposure mode. Notice on both screens that I'm Showing, although the icon only shows E-TTL, the descriptive text gives it its full title.

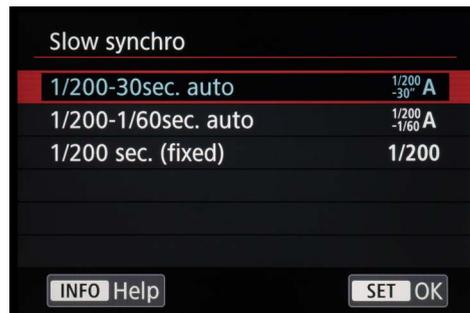
Throughout this book assume that the flashgun needs to be on its standard E-TTL setting unless I specify otherwise. The main two modes that we utilise are E-TTL and M. I will look at these along with the other three, later on in the book.

AV mode

I now shoot in AV mode most of the time, including when I am shooting with flash. It allows me to control the depth of field and gives very good results in almost any light levels when using fill-in flash.

However, it is a mode where over the years I have seen more problems with flash than any other mode, largely due to photographers not understanding the restrictions you have to work with when shooting with flash.

It is also a mode whose operation has changed since 2018 on the new models, thanks to the changing of the way that slow synchro options work. Traditionally, AV mode has allowed you to choose the aperture and then the shutter speed would be set automatically in the range from your maximum synchronisation speed (1/180 – 1/250 depending on the EOS model you have) right down to 30 seconds when you are shooting in very low light levels.



This is still possible, however, on the newer models you have to make sure that the slow synchro option is set up to the range, as shown in the screen grab to the left, that will allow you to do this, which is not its standard default.

On the newer cameras if you leave it on the default it makes no difference at all if shooting an image like the one to the right in bright light levels. However, once you start to shoot in low light you will start to find that your images will start to have dark backgrounds, though this is offset to a degree by the higher ISO settings they will use when flash is in use. One thing to note is that on the image to the right the aperture was set to f11, this was chosen because it allowed my synchronisation speed to be right for the light level that I was shooting in, which on the camera I was using which had a maximum synchronisation speed of 1/200. So, in the image to the right I am shooting right on the very edge of the acceptable light level that I can use. If I wanted to use a wider aperture, I would need to switch on the High-speed flash synchronisation, which will then allow the shutter speed to go higher. However, each shutter speed it goes higher, halves the range of my flash.

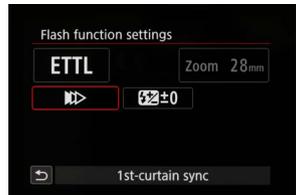
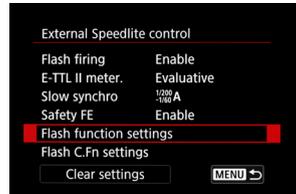
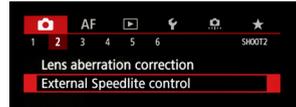
Although it was not in use when I shot the image to the right, it would undoubtedly



AV mode

have been enabled as a safety feature, just in case I didn't notice the light level increasing. I'm going to talk about the high-speed

synchronisation in more depth later, however the screens to the left show you where to find this function within the camera menus. Providing you have a camera that is 2007 or later you will find this option within the flash control or External Speedlite control option within your menus. We showed you a chart earlier on in the book where you can look up whether this is in your shoot menu has shown to the left or for earlier models, pre 2009 it is normally in the setup or tools menu. If your camera has a built-in flash it's in the flash control menu, if it does not have a built-in flash it will be in the External Speedlite control option in the menu. When you enter this menu, you will find there is an option within that menu for Flash function settings, this



is standard for all cameras. When you highlight this and press set, it takes you in to the controls for the flashgun you have attached, the symbol is a little bit obscure, it's three triangles together normally with the first one shaded in.

However, if you look at the bottom of the four screens you can see the three options that may appear on the screen initially. The one you need to set is the one with the flash symbol and the letter H, which is always the far-right hand option. This is an option that is only available when using an external flashgun, as the built-in flashguns simply do not have the power to perform High-speed flash synchronisation.



AV mode 100 ISO 1/1/160 f8



AV mode 100 ISO 1/640 f8

The images above are a good example of why this option should be turned on if you are shooting outside in bright light. These images are only taken a few minutes apart, however the key difference is the right hand images taken with the sun going onto the front of the subject the one to the left is taken with the subjects back to the sun which means is a lot less light falling onto the face of the subjects.

The ISO and aperture is identical for both shots, but the shutter speed has gone up from 1/160th on the backlit shot on the left, to 1/640th on the front lit shot on the right, which is a difference of two stops. Had the High-speed flash synchronisation not been set, the image on the right would have been two stops overexposed As the camera would not have been able to raise the shutter speed to prevent it.

PREVIEW EDITION

AV MODE WORKS WELL FOR

Outdoor portraits with fill-in flash - When you want fill-in flash AV mode is the easiest of the modes to use, if you need control over your aperture, but you must watch the shutter speed in the viewfinder and check it's not flashing.

Bright interiors where ambient light is needed - If you need to see the background in a shot and the light level inside is reasonably bright then this mode does a good job of balancing the two together, using Auto ISO and letting the speed go up can be of benefit, or if setting ISO manually make sure it is high enough for the ambient light

AVOID FOR

Low light with no blur - If you're shooting in very low light levels, then unless you have a very wide aperture lens, you will normally be on shutter speeds too slow to handhold.

Fast shooting - With subjects such as children where you need to shoot quickly, AV mode can be slow, due to the need to keep checking settings so Program mode may work better.

Inexperienced photographers - You do need to know what you're doing in this mode so it's far from ideal for novices.



The image above shows what happens when you have a party, to celebrate the end of a shoot and the models get hold of the professional's camera. Which is why I have quite a number of pictures that are illustrating the problems with shooting on AV mode in low light.

I had the cameras set up to deliberately get a bit of blur on some of the people dancing on a much brighter dance floor and to also get an image sharp superimposed over the top. The area where this image was taken was far darker and so the shutter speed dropped very low and the models did not realise the picture was still being taken and so the camera got moved.

If the camera had been left on Program mode, then it would produce some quite adequate images without the blur occurring.

There are some fully automated modes within the scene settings that I will look at towards the end of this chapter as there's a couple that can be used for novices when shooting in low light or for more general shooting where the camera will take a little bit more control and often give better results if the person using the camera doesn't understand the basics of photography.

Camera flash menus - Post 2009 models

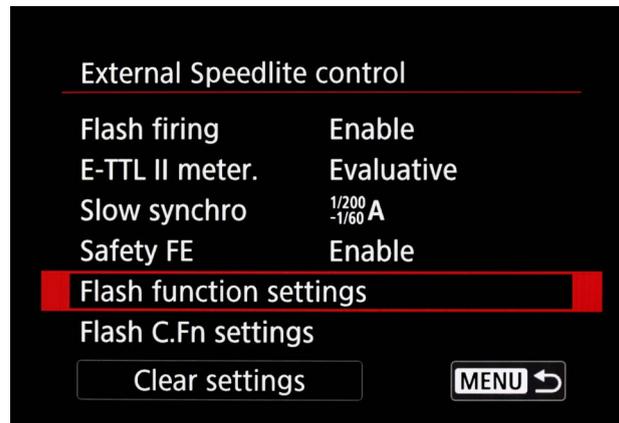
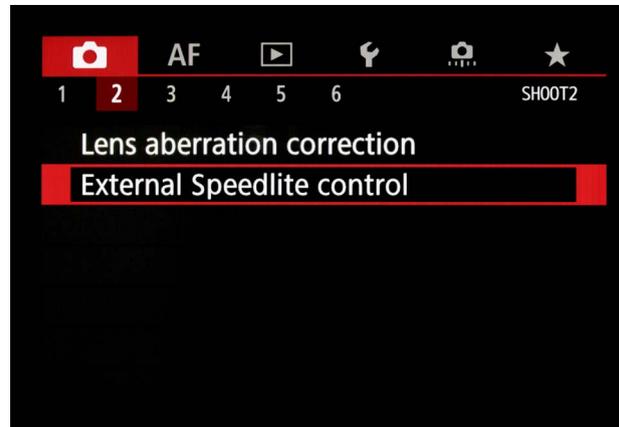
PREVIEW EDITION

Models which have come out since 2009, will have the flash menus within the camera or shoot menus. That's basically the red tabs within your menu system. If your camera does not have a built-in flash you are looking for an option which is called External Speedlite control. When you highlight this and press set it takes you into a menu where you will have some general flash settings at the top and towards the bottom you will have an option called Flash function settings. This is where you will find the flash options that are available to set on the flashgun itself. So, when you go in that menu and set things it automatically communicates it to the flashgun that's fitted on the camera. These options are shown immediately to the right.

If you do not have a compatible flashgun fitted then it will just come up and say no communication is possible. It will also do that if the attached flashgun is not turned on, or if the batteries are flat so it's not charged up.

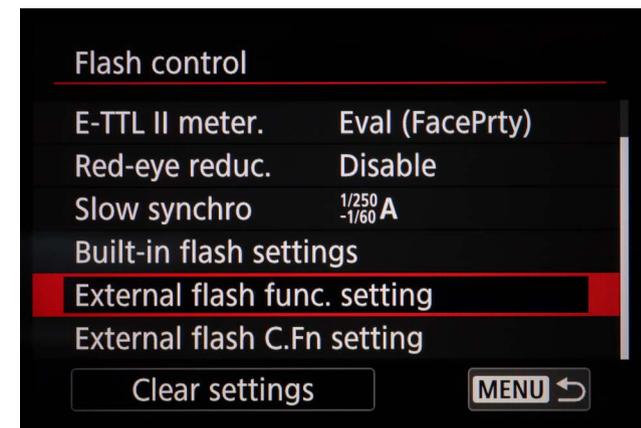
If you have a camera that has got a built-in flash, then you are looking for an option within the menu called Flash control. When you highlight this option and press set it takes you into a menu which will have the same general options at the top but towards the bottom it will have options for the built-in flash settings and then underneath of this for External Flash function settings.

Obviously if using the built-in flash, you go into the menu for the Built-in flash. If you are using an external flashgun then you choose the external flash function setting menu. Once either of these



is highlighted and you press set it takes you into a menu where the options can be set.

Once you are in the controls for an External Speedlite then it will be almost identical regardless of the camera or the flashgun that you are using.



Camera flash menus - 2007-2009 models

PREVIEW EDITION

In 2009 there was a little bit of overlap between the two systems, the first camera that moved the flash options into the shoot menu was the EOS 7D. Models prior to this have the External Speedlite control within the setup menu where once again it will either be called Flash function settings if it's got a built-in flash or External Speedlite control if it does not have a built-in flash.

If you still have a camera that was launched within the period 2007 to 2009 it is worth checking your flashgun against the compatibility charts in the front of the book as the flashgun could predate the communication system.

These menus are very similar to the ones that we use today, when you navigate your way in you will find most of the same options, although the options are shown as the list (bottom right) rather than the grid system (below) that are used on the later models.

The options available are very similar, but just

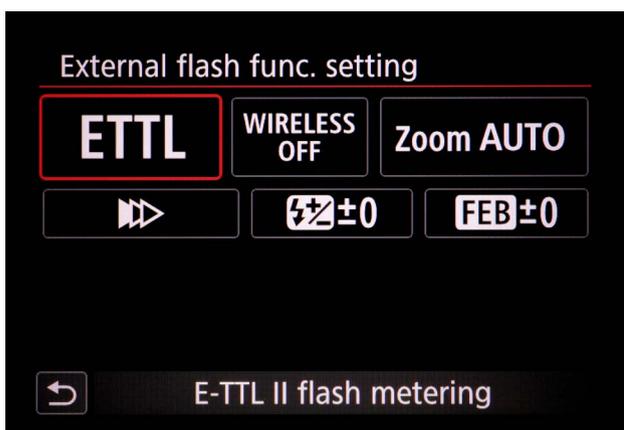
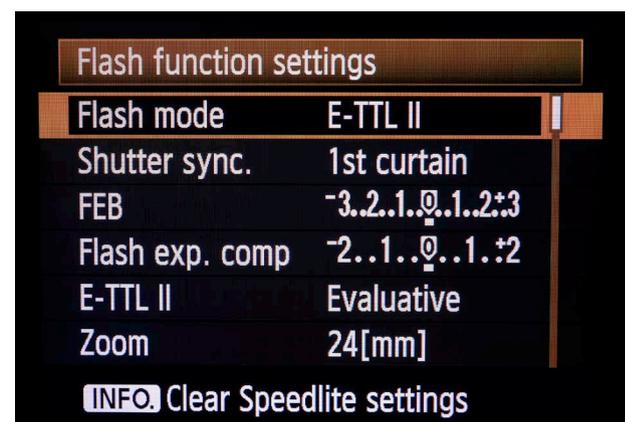
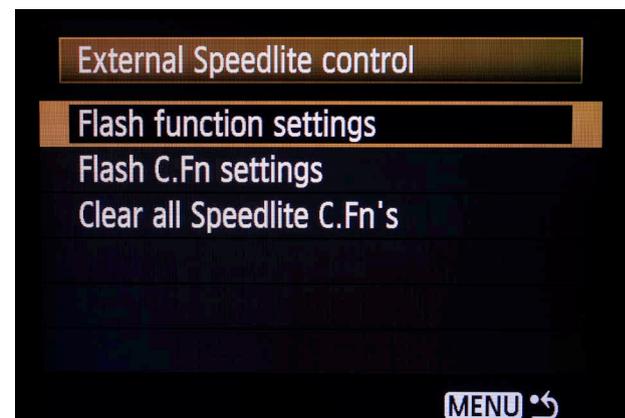
laid out in a slightly different fashion. Some of the options are in the first of the menus rather than on the grid in the current set up.

The menu screens that we are using will be from models produced in 2018 onwards, the cameras we are using are the EOS R, EOS M6 Mark II, EOS 90D and EOS 1DX Mark III as between these four models we have the complete set of features that are found today within the Speedlite system.

The models that use the menu system shown to the right on now over a decade old and we're seeing significantly fewer of these models still being used, hence why this book will be using the new screens throughout.

If you've got one of the older models you will have had it for some time and so should be familiar with the way that the menu system works and you will very quickly find where the settings that we're talking about are on your model.

There will be some slight differences as we are seeing new features coming out all the time for the Speedlite system. So if you can't find one of the features that we're talking about its most likely that it's not available on either the camera or the flashgun that you've got.



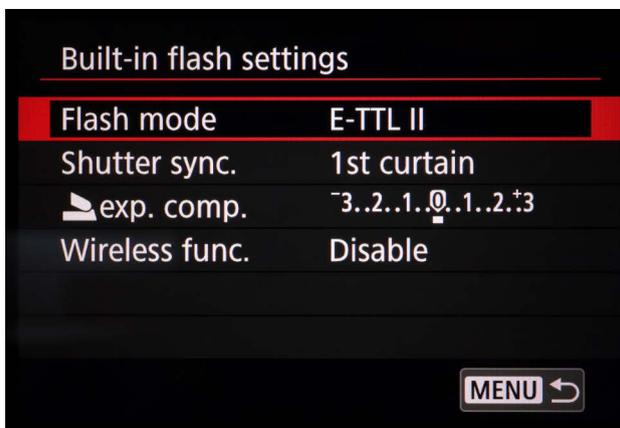
Flash mode

The flash mode is the flashgun's equivalent of the camera's exposure mode. On the majority of camera models which have a built-in flash this will be defaulted to E-TTL II and will be greyed out as you only have the one option.

It's important to realise that this is a different control to a couple of things that we've already looked at. E-TTL Meter is the flashguns equivalent to what we would think about as the metering mode with the ambient light, so, it's the way that the light is being measured. The E-TTL balance is a new option, and it's allowing you to control the way that ambient light and flash light is mixed or balanced together so in other words it's controlling the proportion of how much of each one is being used. It can be confusing that they all use the term E-TTL but all apply to slightly different things.

This is why it is so important when shooting with flash that you understand all of the options and not just muddle through setting what you think is right. Some of these options have the power to make you flash images much better, but also to cause exposure problems which can be difficult to understand why they are happening.

Setting the flash mode to E-TTL II is allowing the camera to use whatever you set up in those other options on the previous screen. In essence what it is doing is to put the flash into an automated mode where it will fire its pre-flash to help it assess the subject and then it will automatically control its output. Exactly how it controls its output is governed

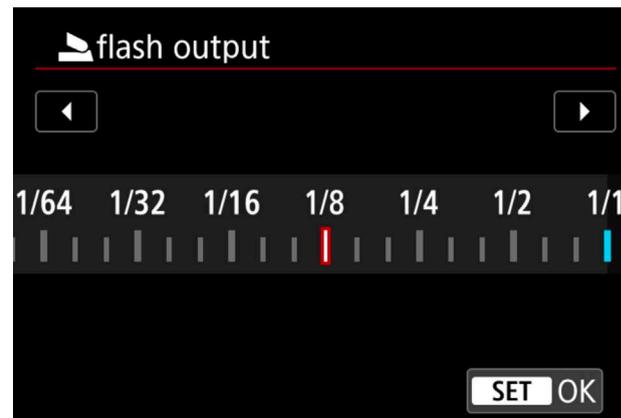
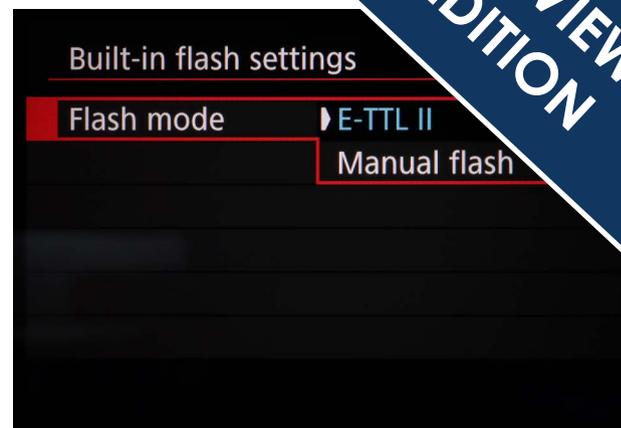


according to the camera's exposure mode that you're working in. In P, AV, TV and FV modes, it will try and adjust its output to give fill-in flash. If working in manual exposure mode, on the camera it will simply try and get the subject correct and would ignore the ambient light which the photographer is setting. So the mode is also crucial to getting the results as you want them to look.

The more advanced models have started to allow you to set a manual flash option. Once you have chosen manual flash then you then have another option (shown immediately right) within that menu to set the flash output this can be set to anything between 1/1 and 1/128th power on most cameras.

I find this a little bit of a strange option as the built-in flash is really not powerful enough to do most of the things that we would use a manual flash output to do.

E-TTL is the option that this is left on almost all the time except if shooting very specialist types of flash



photography with a photographer that has a good level of experience of taking manual control over all the settings.

I have seen a number of situations where a photographer claims that the flash system is not working very well especially for fill in flash and I find that they are shooting everything manually both on the camera and on the flash. They are also normally surprised when they are told that it's because of their setting that the images do not come out as expected.

Sync settings

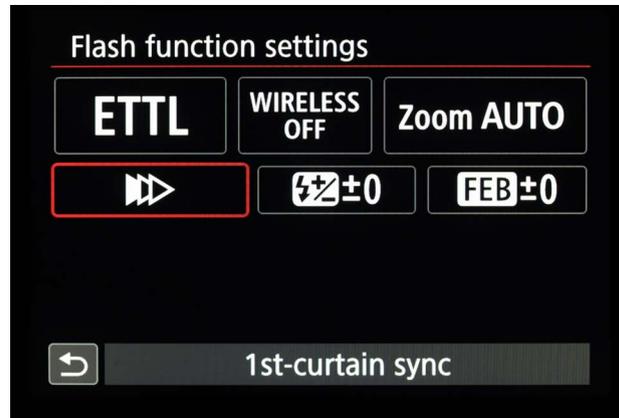
One of the things that you may be noticing is that many of the settings on the flashgun, can be set in several places. These settings can be set on a flashgun, or they can be set in the menus, plus of course we've also seen this option already for the built-in flash. You will notice depending on what flashgun you're using and whether you're using the flash on or off camera, the options you have available, will vary slightly.

One thing which is very important with this particular control is to understand the symbols, in the course of the training I do I see a number of flashguns set up incorrectly, normally because the photographer is unaware what the symbol means, and on some of the flashguns these options get changed by pressing a single button just once or twice. This easily gets done if the photographer is struggling to set something and experimenting with almost every button on the flashgun.



FIRST CURTAIN SYNCHRONISATION

We've already looked at this option a couple of times within the book and as I've said before this is simply allowing the flashgun to fire as the first shutter curtain opens. When this option is in use you are limited to a maximum shutter speed which is the maximum sync speed on your camera which will be between 1/180 and 1/250 depending on the camera model that you have. If you note the symbol has the first of the three triangles shaded, which depicts the flash firing on the opening of the shutter curtain. This is the default setting and is where the flashgun should be returned to when you finish shooting.



2ND CURTAIN SYNCHRONISATION

This is allowing the flash to fire as the second shutter curtain is about to close. This is only normally used if you are shooting something that is moving on a slow shutter speed. It allows any blur or light trails to be behind the subject rather than in front.

Again, we've looked at this earlier in the book. The symbol for this is the third of the triangles shaded in which is depicting the flash firing as the 2nd shutter curtain about to close.

It is important that second curtain synchronisation is not left set, as it separates out when the flash fires its pre-flash and when the picture is taken. If we're working at the normal sync speeds this will give our subject long enough to blink, but not long enough to re-open their eyes and so it increases the incidents of people with their eyes closed within your images.



HIGH SPEED SYNCHRONISATION

This has been mentioned on a number of occasions throughout the book and I looked at how it worked back in the reference section however I want to look at it in more depth here as although this is a useful feature it can cause problems with lack of power if the photographer using it, does not appreciate what it is doing.

This flash mode is designed to allow you to shoot at shutter speeds higher than your normal synchronisation speed, and in fact allows you to go right up to your maximum shutter speed of 1/4000th or 1/8000th whichever your camera has.

When using shutter speeds above the normal synchronisation speed, the shutter travels across the frame as a narrow slit, and so the flash has to keep outputting all the time that the shutter is travelling. The higher the shutter speed you shoot at the longer it takes for that slit to get from the top of the image to the bottom and therefore the longer the flash has to output for.

Bounce flash



These two images have been taken on exactly the same settings, 1600 ISO, f4 1/60 on AV mode. The only difference between them, is in the left hand picture the flash head is pointing directly at our model whilst on the right hand image we have simply bounced the light from the ceiling.

The room had the standard 8 foot ceiling and as I was working very close to the model the flash head is pointing almost directly upwards. The flashgun has worked out automatically the difference needed in exposure.

Even if you live in an older house with higher ceilings, like some of the Victorian properties, that is still low enough for flash light to bounce off. However, there are some rules. The ceiling needs to be white, if the ceiling is coloured then the flash will pick up whatever colour the ceiling is, and the light will become that colour. However most domestic ceilings are white. The light will bounce off approximately the same angle as it hits, almost the same principle as a snooker ball hitting a cushion and bouncing off. So, the further away your subject is the lower the angle of the flash head whilst the higher it needs to be the closer

your subject is, the more vertically upwards it needs to point.

Most of the flashguns have flash heads that can be raised up and down which allows them to be bounced as shown to the right at the top. Most also have what's called a swivel facility as shown at the bottom.

This is important if you're shooting in the vertical format as your flash head needs to swivel so it can still point up at the ceiling. Plus of course if you're taking in the landscape format and you want to bounce some light off a wall you would also need to swivel the flash head.

You can see that just bouncing the light from the ceiling has given a lot more relief on the face and a much more natural look.



Bounce flash + Catch light panel

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Bounce flash without catch light panel



One of the things to bear in mind is we are used to light coming from above and lighting our subjects, we rarely see subjects purely lit from the front, level to where they are.

One of the reasons why bounce flash gives us such a dramatic improvement on the flash images that we are getting, is that when we bounce from the ceiling we make the source of the light much larger. The bigger we make the light source, the softer the lighting becomes and the more flattering it is. So the improvement is a combination of the light coming from a better angle and from a larger light source.

You can see that bouncing the light can give us a much nicer looking result, however what you may notice is that if somebody has quite deep-set eyes you can get a lack of light going into the eye.

The more sophisticated guns within the Canon Speedlite range have what's called a catch light panel which can be seen on the flashgun image bottom right.

Bounce flash with catch light panel



This is a white panel that pulls up and although most of the flash light is going to be bounced from the ceiling the catch light panel pushes a little bit of light forward to give a catch light in the eye and it's normally enough when working at close range just to lift the eye sockets a little bit.

You can see the images above that it can actually make a small but subtle difference when we are shooting with bounce flash, especially in lower light levels and it does put a small catch light in the eye as well.



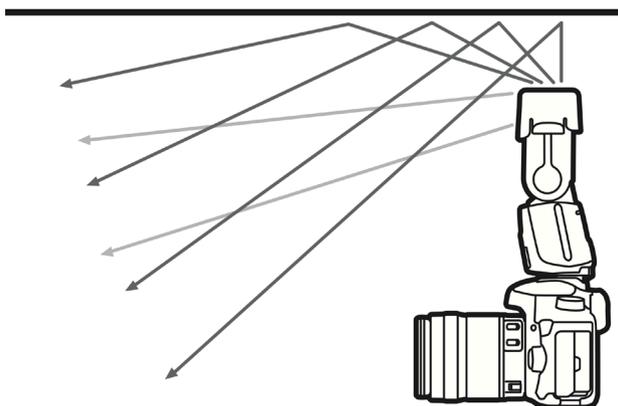
Bounce flash + Bounce diffuser

Several the Canon flashguns come complete with a bounce diffuser. This is a translucent white box that fits over the front of the flashgun and makes the light output in different directions.

Indoors these accessories are normally used pointing straight upwards, if shooting within a few metres. Outdoors although they can be used straight on tilting the flash head up at about 45 degrees generally gives a softer effect. However, the amount of difference they make outdoors is significantly less than they make indoors.

If your flashgun does not come with one of these accessories, they are available online from a number of different manufacturers and they are available to fit most of the flashguns in the range. The only one I have not managed to track one down for is the small EL 100 flashgun although that could be due to its power and also the fact that we don't see that many of that flash in the market.

These can make quite a difference to the image that you capture. However, they do lose quite a significant amount of light, two to three stops which affects the range that your flashgun can light. Although they do soften the light slightly, fundamentally, the source of the light, the flash head, is still pretty much the same size. The diagram to the right shows the effect that they are having, which is light is being output in a wider sphere around the head. This means unlike normal bounce flash which can leave shadows in the eye sockets and under the chin this lighting tends to be softer overall and does a better job.



Putting the techniques together

AMBIENT LIGHT - how much ambient light is there and is it feasible to use it to get some light into the image besides the flash light. Think about the best place to shoot the images within the room. Remember a little bit of backlighting can help. However, if you've got too much, it will cause you significant exposure problems. If you've got a big window is better to let that shine the light on the subject rather than have the subject in front of it.

FLASH LIGHT - how are you going to use the light from the flash? Remember, direct flash never looks very good, do you have a white ceiling at a sensible height to bounce it off? Are you going to use any methods of softening the light to give a better result.

SETTINGS - think about which mode to use and whether you're going to control things like the ISO yourself. Program mode can work well but it can give aperture's which are a little wide for some images. AV mode works well but on the slightly older models do watch shutter speeds as they may go far too low. Remember you've got functions in the flash menu to change this.

LENS CHOICE - think about the focal length that you're shooting with; interior shots can look cluttered and the wider the lens you're shooting with the more background you are going to get in the image. Focal lengths between 50mm and 85mm work well if shooting on the models with the smaller sensors. If you have a full frame model then lenses between 85mm and 135mm works superbly for portraits.



BACKGROUNDS - think about what's in the background of the image, wallpaper curtains with large vibrant patterns will detract from the main subject, ideally a plain wall or something with neutral tones is going to work best for your background.

FRAMING - the more you concentrate on your subject the more impact your images will have. You will also find the more you fill the frame with the subject the less problem you will tend to have with

exposures. Remember the old adage less is more.

The image above is a tighter framing taken at the same time as the image on the previous page. By getting a little bit closer and using a longer focal length, this one is taken at 105mm, the previous one was zoomed back to just 70mm, it has allowed me to get significantly more background blur even though I was shooting at exactly the same aperture.

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