# Basic Studio Flash Setup – To achieve correct exposure

**Why do you have problems?**

Digital SLR cameras have a focal plane shutter which sits in front of the camera sensor. A focal plane shutter consists of two blinds that travel from top to bottom that open to reveal the sensor. The first one opens, uncovering the sensor, and the second one then closes, which means that the sensor is exposed to the light for a moment. When using flash, whether on camera, off camera or studio, the flash has to fire at that moment otherwise you will see **Black Bands or No Picture at all.**

Most DSLR cameras have much higher sync speeds of up to 1/250 than the old film SLR cameras which used to be 1/60 – 1/125. Studio flash fires pretty much instantaneously, so you need to make sure your shutter is all the way open when the flash fires, or you will get black bands or no picture

**Your Cameras' Maximum Flash Sync Speed**

In order to avoid this problem you need to shoot at, or below, your flash synchronization speed. Here are some examples, but I would recommend you check your manual. If you are using on camera flash or off camera flash, the camera will not fire the flash if you set your shutter speed higher than your sync speed.

Canon EOS DSLR Flash Max X-Sync Speeds:

Full Frame Cameras
6D = 1/180s
5D = 1/200s
5DMkII = 1/200s
5DMkIII = 1/200s
1DsMkIII = 1/250s
1D X = = 1/250s

APS-H Cameras
1DMkIV = 1/300s
APS-C Cameras
1100D = 1/200s
650D = 1/200s
EOS M = 1/200s
7D = 1/250s

Nikon DSLR Flash Max X-Sync Speeds:

FX: D3/D3x/D3s/D700/D800 = 1/250s
DX: D7000 = 1/250s
DX: D5000/5100 = 1/200s

Pentax DSLR Flash Max X-Sync Speeds:
All = 1/180s

**Setting up you camera for studio flash**

Your camera has a metering system that is designed to work with continuous light otherwise known as daylight. Flash is instantaneous light so the camera settings will be different.
We need to look at the following to get the settings right:

Manual Mode
Aperture Used
Shutter Speed Used
ISO Setting
White Balance
Light measurements
Method of firing the flash

**Manual Mode**

It is Manual Mode all the way. Aperture Priority, Shutter Priority, Program Mode & Auto will NOT help you here.

**Aperture Used**

As normal you have a choice. Do you want a shallow depth of field, or everything in focus front to back? Depending on your subject and the effect you want, set your aperture.

Smaller hole (larger aperture number e.g. f22/large depth of field) = less light getting to the sensor so you might have to turn up the power on the studio flash. Conversely a Larger hole (Smaller aperture number e.g. f2.8/shallow depth of field) = more light getting to the sensor so you might have to turn down the power on the studio flash.

Once you have decided on your depth of field you can set up the rest of the camera functions to get your shot.

**Shutter Speed Used**

As previously mentioned above, you are limited to your maximum flash sync speed. You just need to make sure the whole sensor is revealed when the flash is fired.

Unlike daylight photography the shutter speed has next to zero effect on subject blur as the flash of light from the flash freezes movement.

Now I said above your camera will have a maximum flash sync speed, but this is generally for on camera flash or your hot shoe flashgun and there is no guarantee that this will work with studio flash. So in order to ensure that your studio flash will work properly with your camera, start with a lower speed such as 1/125. If you use a slower shutter speed, this

shouldn't affect the exposure because the ambient light in most indoor situations should be insignificant compared to the flash.

**ISO Setting**

Setting the correct ISO is key to a correct exposure. We have the shutter speed set to the available flash sync speed and we have the aperture set as determined by the desired depth of field, the ISO must be set to get a correct exposure.

To get the best image quality you would obviously set the ISO as low as it can go, such as ISO 100. You then adjust the power output of the flash head to get enough light to get a correct exposure.

However, newer DSLR cameras have much improved sensors that do not suffer so much with noise at higher ISO speeds such as 1600. You effectively double the output of your flash by increasing your ISO speed by one stop, i.e. ISO 100 to 200 or 200 to 400. So instead of adjusting the power output of your flash, you can just change the sensitivity of your camera sensor by increasing or decreasing the ISO speed.

**White Balance**

If you are recording your pictures as Jpegs, do NOT use AWB. Most studio flash kits produce light at 5500k, so if you can set your camera to this in your white balance settings, you should get a neutral colour balance.

If you cannot set the camera up this way, use the flash setting as your white balance.
If you are recording your pictures in RAW, you can set your white balance at your developing stage in Photoshop, for example.

**Light Measurement**

Guestimate!! Your all singing all dancing camera cannot meter for studio flash and you are in manual mode, so you will have to guess and then check your screen to see if your exposure is correct. Using the histogram will also help. Best bet is to only change one setting at a time – I would suggest ISO first.

The second way is to use a flash meter. These take out all of the guesswork. Just hold your meter in the desired position, set off the flash, and the meter will tell you what your camera settings should be…. But where is the fun in that!!

**Firing the flash**

There is a multitude of ways of setting of the flash, at the correct time. If your camera has a synch socket you could connect directly to the flash with this. Otherwise you can use an adaptor on the hot shoe and connect to the flash. However, this is definitely not recommended as the voltage carried in the cable could damage your camera. You would

need to know the trigger voltage of the flash, and the how much voltage your camera can handle, both answers are not easy to obtain.

You can use a hot shoe flashgun fitted to your camera which can trigger the studio flash, if the pre-flash that they usually produce can be turned off. The on-board flash is in the same boat here. If you use this way to trigger the flash heads, you must turn the power down on your flash so the lighting is not overly affected.

Method three is to use radio triggers. You put a transmitter on the camera hot shoe, and attach the receiver to the flash head (The receivers have a synch socket to attach by cable to the flash head). This is essentially the same as using a remote control to turn on your TV.

This would be the preferred method as radio triggers do not need line of sight and they have multiple channels to combat interference, there are no trailing cables and trigger voltage is not an issue. There can be a slight delay when using this method, which can affect the shutter speed used.

If you have multiple flash heads, in all firing methods you would only to connect to one flash head as the other flash heads in slave mode would trigger automatically.

Good Luck !!