

West Haddon Photo Club

Macro Photography Using Flash

Introduction

Macro photography is the photography of small objects at very close range usually using special macro lenses capable of very close focussing and 1:1 reproduction. This note is primarily aimed at macro photography of insects and similar small creatures.

There are several obstacles to getting well exposed, sharp shots when shooting macro, especially when shooting hand held. These are:

- Light levels
- Depth of Field
- Accurate focus
- Shutter Speed

Shooting at ambient light levels can often be best for correctly exposing the whole scene but this is only likely to be successful if ambient light is very good, i.e. strong sunlight outdoors.

To enable fast shutter speeds for hand held shooting in ambient light the ISO level will probably need to be raised resulting in poorer image quality. Or the lens aperture will need to be wide open resulting in shallow depth of field meaning only a very small part of the subject will be sharp. Or a slow shutter speed will be needed resulting in likely camera shake. A tripod can be used but this would not be much use when trying to photograph insects in the wild as they unhelpfully tend to flit off at the slightest disturbance.

So to overcome these disadvantages of shooting macro in ambient light what can we do?

Use Flash

The easiest way to improve lighting for macro shooting is to use flash. Doing this allows you to apply more light to the scene and allows control of that light whilst enabling the use of low ISO (better image quality) and smaller apertures (greater depth of field).

It also allows shooting at a high shutter speed because, although the camera flash sync speed may be 1/250 sec or less and the camera shutter speed may default to 1/60 sec when a flash is mounted, the effective shutter speed is the duration of the flash which could be 1/400 sec if the flash uses full power but can be as high as 1/20000 sec on low power so the flash has the effect of “freezing” the subject.

How to Use Flash for Macro Photography

There are a few options for flash photography for macro. These are:

- Studio set up
- Pop Up Flash on Camera
- Flash Gun (or Speedlight) mounted on the camera hot shoe
- Flash Gun off camera triggered wirelessly or by attached cable
- Ringflash or other lens mounted small flash guns attached around the lens front

Looking briefly at each of these possibilities below we can see that some methods are likely to work better than others.

Studio Set Up – there are obvious limitations here such as cost, having to “import” your subjects from the wild, setting up realistic backgrounds etc. So it may be great for product photography but it is not really suitable for most of us who are bug chasing.

Pop Up Flash – these small on board flash units are great at a pinch for adding some fill flash to a portrait but don’t serve well for putting light onto a small macro subject because the flash light is often blocked by the lens or it results in unsightly shadows or partial illumination of the subject.

Hot Shoe Mounted Flash – similar problems to Pop Up Flash in that the flash is stuck on the camera and illuminating the whole scene is difficult.

Off Camera Flash – this offers much better possibilities for getting decent results as the flash can be moved around to put light where you want it. But the downsides are:

- You need a sync cord or wireless device matched to your make of camera to link the camera and the flash and enable “Through the Lens” Metering.
- You also need one hand for the camera and one for the flash.
- You can only illuminate one plane of the subject which may result in harsh shadows.
- Can be clumsy to use.

Ringflash – these are specifically designed for use for macro photography and close up portrait work as well as dental photography. They are versatile, portable and controllable and produce excellent results. They can be expensive but may be worth it to get really good results.

Best Options

Of the five options referred to above only two are of real potential value to the macro shooter wanting to photograph insects and such like. They are **Off Camera Flash** and **Ringflash**. So let’s look at those two in a bit more detail.

Off Camera Flash

This method utilises a flash gun, which many photographers may already own, and some means of triggering the flash while it is off the camera. The simplest and cheapest method is to buy an off camera sync cord matched to your camera make. All the main camera makers have one or more or there are third party versions that are generally cheaper.



These are cables with a male and female hot shoe attachment at each end. One end connects to the camera hot shoe and the flash gun fits into the other. When the camera and flash are switched on all of the available flash and camera functions will work just as if the flash were mounted on the camera but with the benefit that the flash can be moved to light the subject better, subject to the length of the cord.

It can be possible to have wireless communication between camera and flash. Some flash guns have a slave function that is triggered by a low powered blip from the camera pop up flash. The camera flash needs to be set to “Commander” and the flash to “Slave” but it does mean the flash can often be placed close to the subject without a cable connection.

A more expensive, but effective, method is to use a wireless flash trigger. Here you need a trigger on the camera and a receiver on the flash and the result is similar to the Commander and Slave method above. Pocket Wizard is a well-known make but cheaper versions are available.

These last two methods will also allow more than one flash gun to be used giving better illumination but with the added difficulty of holding and positioning the flash units. Great for static subjects but not brilliant for insects.

To make the experience of using a single off camera flash attached via a sync cable easier a bit of DIY can help. Using a flexible “goose neck” with a small ball head the flash can be positioned close to the subject, connected by its off camera cord and held in that position while you shoot. This works well but still has the limitations of using a single light source by

producing harsh shadows and flat illumination. The use of a flash diffuser can help to spread the light more evenly across the subject and most flash guns come with one of these already supplied or a mini soft box can be bought quite cheaply.



Note: For illustration only. Bracket and connecting cord not shown in this image.

Ringflash

This is possibly the most effective and satisfying way of illuminating macro subjects. It is portable, powerful, capable of subtlety and variable in terms of power output to give “shape” to the subject. But it can be expensive although, again, there are third party versions compatible with most mainstream camera makes that can be bought relatively cheaply but often at the sacrifice of some of the useful functions like iTTL (Intelligent Through The Lens functionality).

True ringflash is a circular lighting tube that fits on the front of a macro lens and emits a flash when the shutter is released. They can be either tethered to the camera hot shoe, operated by pre-flash from a camera pop up or wirelessly by a commander unit on or within the camera.

Some types have twin tubes, one each to the right and left of the lens and attached to the filter thread via an adapter. These can be individually varied in output to create more 3D lighting of the subject and give it more depth. *(See next image)*



Other versions comprise of two or more small flash guns that fit onto an adapter on the front of the lens and are operated either by pop up pre-flash, a wireless commander unit on the camera hot shoe or are wired from a unit on the hot shoe to the individual guns on the lens. *(See image below. This is a Nikon wireless unit. Canon and Sigma have wired versions)*



Whatever type of ringflash or macro speedlight set up is used they all have the advantage that they get the light directly to the subject and are portable enough to enable easy hand holding of the combined camera and flash.

With macro lighting set ups like this it is relatively simple to set the camera to Aperture priority, dial in a small aperture, say f11 to f22, set the flash unit to iTTL then using manual focus, or continuous autofocus and back button focussing, fire away. Most of the time you will come away with well exposed, well-lit shots and with a bit practice and some experimentation your macro photography will quickly become addictive.

Also worth looking on Youtube for DIY macro flash set ups and macro flash tutorials. Search for Thomas Shahan (brilliant) and Micael Widell.