

Macro Photography Focus Stacking

A demonstration of focus stacking techniques that can be achieved with minimum cost.

Taking it Further

[www extreme-macro.co.uk](http://www.extreme-macro.co.uk)

<https://www.heliconsoft.com/helicon-focus-tutorials/>

<http://zerenesystems.com/cms/stacker/docs/tutorials/tutorialsindex>

Software demonstrated this evening.

QdsIrdashboard. <https://dslirdashboard.info/>
Free camera control software for Nikon/Canon/Sony

Picolay <http://www.picolay.de/>
Free Stacking Software.

Helicon focus and remote <http://www.heliconsoft.com>

Commercial capture and processing software





Levon Bliss

Exhibition









Macro Photography

Minimum magnification achieved on the camera sensor of lifesize i.e 1:1

Beyond a magnification of 10:1 Generally referred to as micro.

Less than 1:1 referred to as closeup.

Equipment

Macro:

Point and Shoot or Dslr lens with add on lens;

Specific macro lens for DSLR;

Extension tube or bellows with standard lens or Macro lens or reversed lenses;

Tube lens or empty lens with reversed lens;

Enlarger lenses

Microscope lenses mounted on tube or tube lens.



Soldier Beetle

10x Mag

35mm lens
reversed onto
55/300mm
Zoom

Focus Stacking Techniques

1 Focus movement.

Manual using manual focus ring

Automatic using software to control camera (requires autofocus lens)

2. Camera movement.

Macro slide either rack/pinion or screw driven.

Motor driven stacking rail

What Method Is Best

Type of Subject		Focusing Method							
Description	Typical # Frames	Lens Ring (manual)	Lens Ring (AF motor)	Focus Rail (gear)	Focus Rail (manual screw)	Focus Rail (motor screw)	Microscope Focus Block	Bellows Front	Bellows Rear
Landscape	5	Excellent	Excellent	Impossible	Impossible	Impossible	Impossible	Good	Ideal
Bouquet of flowers	10	Good	Excellent	Awful	Awful	Awful	Impossible	Good	Ideal
Single rose	20	Challenging	Excellent	Mediocre	Mediocre	Mediocre	Impossible	Mediocre	Ideal
Raisin	40	Challenging	Excellent	Good	Good	Good	Good	Awful	Excellent
Fruit Fly	200	varies!	varies!	Impossible	Tedious	Excellent	Excellent	Mediocre	Good
Eye of Fruit fly	many	varies!	varies!	Impossible	Difficult	Excellent	Excellent	Impossible	Mediocre

Technique

Use manual exposure settings. Exposure more consistent. Helps stacking programmes.

Flash or static lights. Flash preferred at higher mags, helps stop vibration.

Diffusion of light is important to control extreme contrast, blown highlights etc

Use wide aperture be aware of effective aperture

Measure magnification to determine steps required. Calculators to determine magnification are not accurate.

Common Problems

Dirty sensor or hot pixels will present as stacking worms

Edge streaks caused by loose or sloppy setup.

Software errors confusing high contrast background or overlapping detail. This is where retouching comes into its own.

Halos very common, try a different stacking method or adjust parameters

How Many Frames required ?

Use the chart or step size calculator to determine step size

Measure total depth to focus stack

Divide depth by step size to determine the number of frames.

This value is entered into QDSLRL.

Or total depth and step size entered into wemacro.