



Viewpoint Mike Smith

The design of the SLR camera body is something Mike has always taken for granted. Then, along came mirrorless...

The fundamental physics of cameras hasn't changed. To quote clarkvision.com, 'The lens collects light, the focal length spreads out the light and the pixel chops up the light in to small details'. As photographers, our raison d'être is to collect light, measure it, change how it looks, then show the end result to others. Our duty is to the expression and communication of ideas, but our currency is light.

Ever since the invention of the camera, there has been a great deal of innovation around the way we capture light and then render it. However, in terms of camera design, the SLR has been one of the mainstays of photography – so much so that I not only take it for granted, but oftentimes other design solutions seem immaterial. That line of thinking has been well and truly trounced by the introduction of the mirrorless body, which both Fuji and Sony have exploited to great success. By moving to a digital sensor, you can solve the problem of simultaneously seeing what the lens sees by having an EVF. It is the simplest of camera designs – the light passes through the lens directly onto the sensor. And, by removing the mirror box (and so reducing the flange distance), you make substantial savings in terms of size and weight. Compare, for example, a Nikon D850 (915g/46.5mm) with a Fuji X-T2 (507g/17.7mm). In fact, stick the 27mm f/2.8 pancake lens on a Fuji M1 (as I have done) and you have a diminutive street camera.

But... mirrorless isn't a magic bullet. The critical point to consider is system equivalence. For the Sony full-frame mirrorless, there is no crop factor, so, for the same lenses you get equivalent performance. But wait a minute, the Sony FE 70-200 mm F2.8 GM OSS (for example) weighs 1.5kg, compared to the Nikon equivalent at 1.5kg. Total system weights are 2.15kg (A7III) and 2.41kg (D850), meaning the Sony weighs 10% less. The lenses are the same. Key point 1: you can't cheat the physics of light – lens size/weight will always be similar for equivalent performance.

What happens when the systems aren't equivalent, such as with APS-C or Four Thirds sensors? Remember, crop factor



Is mirrorless all it's cracked up to be?

'Smaller sensors mean a loss for wideangle and low-light performance'

affects both focal length and aperture. Smaller sensors mean a net gain in reach but a net loss for wideangle, low light performance and bokeh.

Take, for example, the very well-regarded Fuji 56mm f/1.2, in comparison with the Nikon 85mm f/1.4, at 405g and 595g respectively. The weight saving seems considerable – but look again. In equivalent terms, the Fuji lens is an 84mm f/1.8. You've got similar focal length but slower aperture performance. That means wider depth of field, less latitude for shutter speed and poorer bokeh. The last of these is more difficult to quantify, but take a look at the Bokeh Calculator (bobatkins.com) which allows you to do just this. For these lens combinations, the background blur is about 30% greater for the Nikon.

Mirrorless brings a lot of tricks to the digital party, but part of staying ahead of the (professional) competition is offering something that others can't. The Sony A9 is a game changer for sports photography and mirrorless is a big winner here. But the use of smaller sensors by Fuji, Olympus and Panasonic presents significant disadvantages in the areas of low light and bokeh. Which is why Sony's long-term plan for full-frame mirrorless is so exciting – there are genuine and rapid advances being made. The ball is firmly in the court of Nikon and Canon – the response will be exciting to watch.

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