

## A DSLR for all reasons

A breakdown of form, function, resolution, response and price

Now that DSLR (digital single lens reflex) cameras have attained capture quality and precision to compete effectively with 35mm film cameras and meet the needs of demanding professional photographers, features and capabilities of individual models are even more important.

Unfortunately, the selection is still limited. Of the current generation of DSLRs, there are only three—Kodak Professional's DCS Pro 14n and DCS Pro SLR/n and the Canon EOS-1Ds—with native resolutions high enough to meet the standards of high-end commercial photographers. Only one DSLR—the Nikon D2H—is responsive enough for serious action shooters, and really only one—the Canon Digital Rebel (testing of the new Nikon D70 pending)—with a price the average photographer can afford. All DSLRs have sophisticated auto-focusing systems and manual focusing capabilities.

They differ, however, in how quickly they can focus and how well they track moving objects. DSLRs targeted at the professional market can capture images in the RAW file format. In most cases, they can also capture images in TIFF and JPEG modes. Only the Sigma SD10 saves image files only in a proprietary RAW format.

For most pros, the two most important considerations in a DSLR are resolution and responsiveness. Theoretically, the higher the effective resolution of an image, the better the quality of any reproduction that might be generated from it. In the real



Kodak Professional DCS ProSLR/n, ISO 160,  $\frac{1}{25}$  second, f/8, studio flash (click balance), focal length 58mm, 3000x3750 pixels.



Canon EOS-1Ds, ISO 100,  $\frac{1}{250}$  second, f/9, no flash, focal length 16mm, 4,064x2,704 pixels.

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world, other factors have an impact on the quality of the final output, such as the type of sensor in the camera, the size of the individual pixels in the sensor, the sensor's filter array, the supporting electronics and the nature of the image post-processing, either in-camera or in the computer.

The **KODAK PROFESSIONAL DCS PRO 14N** and its new sibling, the **DCS PRO SLR/n**, both have 14-megapixel, full-frame, 35mm-size CMOS sensors, though not the same chip. That resolution level is closer to medium-format than 35mm cameras, yet still housed in the body of an SLR. They generate files that can reach 39MB once the RAW data is converted to TIFF. That makes it possible to generate 300 ppi images up to 10x15 inches without interpolation or raster-image-process (RIP) enhancements. The Kodak Professional DCS Pro 14n has a street price of \$4,500; the DCS Pro SLR/n lists at \$4,995.

With 11-megapixel resolution, the **CANON EOS-1Ds** with full-frame CMOS sensor can yield native resolution 300 ppi

files in sizes up to 9x13.5 inches. Image quality is further enhanced through the model's small-pixel sensor design. Each pixel measures only 8.8 microns, as opposed to 11.5 microns per pixel on previous sensors. The EOS-1Ds is priced just under \$8,000. Canon announced the 8.2 megapixel EOS-1Ds Mark II at press time.

Some digital SLRs advertise higher resolutions. The **FUJIFILM FINEPIX S2 PRO**, priced about \$2,000, is a good example. Its Super CCD sensor yields an advertised resolution of 12.1 megapixels in a TIFF file slightly over 35MB. That's enough digital data for a 14x9.5-inch print, but it's an interpolated resolution. Granted, interpolation is handled in the camera with highly sophisticated interpolation routines. But it still cannot be compared in the same vein as other sensors. The new FinePix S3 Pro will feature a 23x15.5mm Super CCD SR sensor with a wider dynamic range.

At \$1,700, the **SIGMA SD10** also computes resolution somewhat differently than just the maximum number of pixels on the

sensor. Equipped with the unique Foveon X3 chip, with approximately 3.4 million sensors, the Sigma SD10 captures all of the red, green and blue image data at *each* sensor position to render the equivalent of 10.2-megapixel images—without interpolation.

Responsiveness is the other critical issue in camera choice. Shutter lag, focusing and refocusing speeds, and media write times all figure into a camera's response. The most common DSLR response shortcoming is shutter lag—the shutter just won't fire when the photographer presses the shutter release button. A full second may pass while the camera computes and adjusts to prepare for the capture. Even then, a camera that hasn't locked onto focus may bounce back and forth through the focusing range before locking on.

Buffer size determines how many frames the camera captures per burst, but it's the write speed, the speed at which the information that's in the buffer transfers to the removable media card, that affects the model's responsiveness.

Probably the most responsive DSLR



Nikon D2H, shutter priority,  $\frac{1}{600}$  second, f/6.3, no flash, focal length 24mm, 2,464x1,632 pixels.



Sigma SD10, ISO 200,  $\frac{1}{600}$  second, f/10, no flash, focal length 20mm, 2,268x1,512 pixels.



Canon EOS 10D, ISO 100,  $\frac{1}{200}$  second, f/9, no flash, focal length 16mm, 2,048x3,072 pixels.



Olympus E-1, ISO 800,  $\frac{1}{200}$  second, f/5.0, no flash, focal length 32mm, 2,560x1,920 pixels.



Canon EOS Digital Rebel, ISO 100,  $\frac{1}{60}$  second, f/5.6, on-camera flash, focal length 55mm, 2,048x3,072 pixels.



Fujifilm FinePix S2 Pro, ISO 100,  $\frac{1}{25}$  second, f/11, no flash, focal length 24mm, 1,800x1,200 pixels.

currently available is the **NIKON D2H**. Designed for sports and action photography, it performs like a film camera. When shooting JPEGs, it can take up to 40 frames at 8 frames per second—more total frames than even a film camera can eat up in a single burst. Its 37ms shutter response time is faster than competing film cameras. The trade-off is resolution. With a 4.1-megapixel CCD chip, the D2H captures a lower maximum resolution than competing digital SLRs. But that's not too low to put the D2H at a significant disadvantage for its designated purpose.

Some DSLRs in the mid-price range are very responsive, like the **CANON EOS 10D** and **NIKON D100**, priced around \$1,500 and \$1,600 respectively. They can't compete with the D2H in sheer speed, but they weren't designed to. Though they don't net ultra high burst rates, they also don't have excessive shutter lag. Adjustments and focus are speedy in both cameras, making these models a good choice for photographers who need to add digital capabilities to their Canon or Nikon film gear.

Body and lens size is a consideration in selecting the right DSLR for location work. Olympus and Pentax both continue to have a strong presence in the consumer photo market, but they've pretty much abandoned the professional market in film cameras. Both introduced digital SLRs for pros in 2003.

In mid-2003, Olympus publicly announced the E-1 System, which had been in development for more than four years. Based on what the company hoped would be a new digital SLR format, the Four Thirds open standard, the first products in the E-1 line included a body and three lenses. The **OLYMPUS E-1** body, which costs \$1,700, has a CCD with effective resolution of 5 megapixels. It's ideal for working on location. With a 2X conversion factor, it's possible to get 600mm coverage out of the 300mm lens. Any photographer who's had to lug around a 600mm lens can appreciate any reduction in size and weight.

In fall 2003, Pentax showed the **PENTAX \*IST D**, a professional looking camera with a CCD that has an effective resolution of 6.1 megapixels. With a street price of \$1,700,

it's the smallest digital SLR on the market, but it has the features and capabilities that pros need along with exceptional image quality.

If quality is important, but price is your primary consideration, take a look at the **CANON EOS 300D DIGITAL REBEL**. It's designed around the same CMOS sensor as the 10D, but with somewhat different electronics and a different focusing system.

It's a digital SLR with professional capabilities, but with a consumer camera price less than \$1,000, including the lens. The recently released **NIKON D70** is primed to compete for this market.

Undoubtedly, as the selection increases, more and more photographers will find models that meet their specific needs. □