

digital report



PIXEL PERFECT

Mid-range cameras for print-shop use

Choosing and using a digital camera may seem like a strange topic to run in a magazine for print shops, but as I visit printers across the country I see more and more of them buying digital cameras. They are most commonly used to take fast, high-quality shots of people or small products, often with a small copy stand and lights, to use in brochures and other printed items. This allows these shops to bring some basic photography in-house and get

the images ready in minutes, instead of the hours or days required by an external photographer. While a professional photographer could no doubt take better images than you might, you'd be surprised how many brochure and catalogue jobs you can do perfectly well in-house, given the incredible quality the latest digital cameras offer.

By Bob Atkinson

And, of course, it presents a whole new service you can offer your customers, and make an excellent profit on.

So, what should you look for when choosing a digital camera? We'll look at the overall criteria for selecting a good model for copy stand or general use. In a copy stand environment, you have a stationary subject and control the lighting, but you may also want to use the camera for more challenging situations.

There are three types of digital cameras, based on the audience they're aimed at. At the low end, from \$200 to \$800, we have general, consumer point-and-shoot cameras. While easy to use, they don't offer the resolution or flexibility you'll need for your work. At the high end, a number of excellent digital cameras can use standard photographic lenses or even special camera backs that attach to a high-end, medium-format film camera body like a regular film back. Think Hasselblad and Mamiya. While these products produce pro-studio-quality images of up to 125 Mb each, they are quite expensive, ranging from \$4,000 to \$50,000 or even more.

For our purposes, we'll look at the middle of the market—the best of the so-called prosumer digital cameras, for amateur consumers who require professional equipment. They range in price from about \$1,200 to \$2,500 and offer the speed, flexibility, ease-of-use and image quality you'll need, without breaking the bank. Several companies, led by Nikon, Sony, Fuji, Canon, and a few others offer good choices in this price range.

Let's begin with the resolution of the camera. For photos aimed at typical prepress and design use, you'll want a camera with a maximum resolution of at least 5 megapixels (Mp). That resolution generates an image of about 2,500 by 2,000 pixels or equivalent (15 Mb files when uncompressed). For most high-quality print applications, a final image resolution of twice the planned print line screen is plenty, so a full-frame image would be usable up to about 8.33" across (2,500÷300) and 6.66" high (2,000÷300) in a 150-line-screen piece. Similarly, one of the more recent 8 Mp cameras (3,500 x 2,300 pixels or equivalent, and 24 Mb files when uncompressed) would produce full-frame images usable up to about 11.6" x 7.6". Remember that if you use only a portion of the full frame and/or if you run line screens higher than 150 lpi, you will not be able to run the images as large. Right now, few prosumer digital cameras have resolutions higher than 8 Mp. Going up to the next resolution level of 11 Mp to 14 Mp will cost you at least three to four times what an 8 Mp camera will cost.

Next, the lens. Since the majority of prosumer digital cam-

digital report

Money makers. Smile

These cameras in the \$1,200 to \$2,500 range meet most print-shop needs. In-house photography will make money for you in short order

Long-time camera giant **Nikon** offers two mid-priced models of interest. The **CoolPix 8700** (left) is a compact fixed-lens 8 Mp camera with 8x optical zoom lens, 12 shooting modes and a lot more for \$1,299. Moving into digital cameras that can use regular Nikon lenses, look at the **D70**, a 6 Mp camera that can use AF or DX Nikkor lenses. With a price tag of \$1,399 without lenses, or \$1,799 with an 18mm to 70mm (3.5x) zoom lens, the camera boasts up to 1,600 ISO sensitivity, excellent white balance controls and many other features.

■ www.nikon.ca/digital/products/cameras/



Consumer electronics heavyweight **Sony's** top camera is the **CyberShot DSC-F828**, with 8 Mp, 800 ISO maximum sensitivity, an excellent Carl Zeiss f2.0 7x optical zoom lens with macro, a unique four-colour sensor (adding an 'emerald' or cyan channel to the usual RGB gets better blue-green detail), auto-focus that works even in the dark and both CF and Memory Stick Pro card storage onboard. Although its huge lens gives it a strange form-factor, the traditional manual-zoom lens is a joy to use and the image quality is generally excellent. Look for it at about \$1,400.

■ www.sonystyle.ca

digital report

eras have a fixed lens, you're usually stuck with it. Given this, you'll want a lens that is relatively fast, offering a maximum aperture number of 2.8 or lower. (The lower the aperture number of the lens the less light you need to get acceptable images. For typical copy stand use, available light levels will not be a problem, but for other uses it may well be.) You'll also want a lens with a wide zoom range of at least 5x optical, regardless of any additional digital zoom the camera may offer, and excellent close-up or macro capabili-

ties. Ideally it should be able to focus on objects as close as 2 cm to 3 cm. If the camera you choose can use interchangeable regular camera lenses, then you have much more flexibility, though at an extra cost for the conventional lenses you'll need to buy.

Third, we look at the ISO—formerly known as ASA—sensitivity of the camera. This is equivalent to film speed for a conventional film camera. The higher the film speed, the less light you need to get good-quality images, given any lens aperture (f-

stop) and shutter speed. While many conventional film stocks offer ISO sensitivities of 1,600 or more, few prosumer digital cameras offer sensitivities of higher than 800, and, quite often, they have a lot of image noise when used at their highest ISO settings. Look for a digital camera that offers a sensitivity of at least 800 ISO, or 1,600 if you can get it. That sensitivity, and a lens with a wide maximum aperture are the keys to getting good images of fast-moving objects or shooting under low light levels. Remember, howev-

Canon's EOS 300D Digital Rebel (left) is a small 6 Mp camera that uses Canon EF lenses and has an ISO sensitivity of up to 1600. It's available in a body-only model for \$1,299 or with a 3x zoom lens for \$1,399. Moving up-market, check out the **EOS 20D**—body only \$1,999—an 8.2 Mp camera that also uses Canon's EF lenses. It comes with up to 1600 ISO, excellent white balance controls and very flexible exposure control.

■ www.canon.ca/english



Fujifilm's FinePix S20 Pro comes with 6.2 Mp, 6x zoom lens, FireWire and USB interfaces, MicroDrive and XD card slots, and a price tag of \$1,200.

■ www.fujifilm.ca



For more information, visit the excellent www.dpreview.com site, with enormously detailed reviews of literally hundreds of digital cameras

digital report

er, that the cleanest images are obtained when using ISO settings of 200 or less, which is normally restricted to high-light situations like copy stand work with lights, outdoor shots in daylight or shots with a flash.

Finally, let's look at a number of small things that provide flexibility in the camera:

- Most digital cameras offer a few canned white balance settings, like daylight sunny, cloudy, or indoor incandescent, but an automatic or manual custom white balance setting is very handy for situations when you have a mixture of different light sources in the same shot. Look for a camera that offers an automatic and/or manual custom white balance. With that, you simply show the camera what a white object—like a piece of inkjet paper—looks like under the current light and the camera automatically balances the colour.

- Different automated exposure modes can be very handy: shutter priority mode is handy to stop fast motion; aperture priority mode can be great for getting the best depth of focus in still or slow-moving subjects; and total manual exposure mode lets you set your own shutter, aperture and ISO sensitivity settings, based on the camera's recommendations. All are very handy in different situations. Look for a camera that offers all three of these modes in addition to the full auto mode that all cameras offer.

- Built-in flashes are usually terrible. They're designed for a generic amateur photo subject about 8' to 10' wide and 8' to 10' away. If you have any other situation, such as closer or farther subject, or wider subject, the flash will be a problem, overexposing the foreground while leaving the background totally dark, producing red-eye, and so on. Look for a camera that supports a proper external flash unit via sync connector or hot shoe. This allows you to use a much better-quality external flash that can be angled to properly light the subject without overexposing it or causing red-eye.

- Many of the best prosumer digital cameras come from traditional camera companies like Nikon, Pentax, and Canon, and are compatible with existing conventional 35mm lenses you may already have. These



Get a memory card of at least 256 Mb

lenses are normally much better and more flexible than the fixed lenses offered on most digital cameras, although at a considerable extra cost. A great fixed lens, say, with 5x optical zoom with macro mode, on a digital camera can often be enough,

digital report

given the cost of duplicating it in conventional lenses. Often two or three lenses are required to do that, adding another \$600 or more to the price. But if you already own conventional lenses, look for a digital camera that can use them.

- While most digital cameras use JPEG—a somewhat noisy but very compact file format—as their standard file format, some of the better digital cameras can save images in non-compressed formats: TIFF is much cleaner than JPEG, and RAW is the cleanest, most flexible and largest of all image file formats. If you want the best possible images, look for a camera that can save in TIFF and/or RAW formats. Just remember that you'll need to take a few seconds to record that larger file and that you'll need more on-board storage to hold a reasonable number of images in a photo shoot (see below). You'll also want to make sure your image-processing software supports these formats; Adobe PhotoShop CS, for example, is one of very few programs that can open the various RAW formats used by different camera manufacturers.

- Most digital cameras store their images on Compact Flash memory cards,

Compact Flash MicroDrive, Secure Digital (SD), MMC (Multi-Media), XD or Memory Stick/Memory Stick Pro storage cards. For serious use, get at least 256 Mb of space, especially if you want to work with clean file formats like TIFF or RAW. If you can afford it, 512 Mb or 1 Gb of space is even better. On these storage cards, look for a read/write speed of at least 60x (about 9 Mb per sec), which allows you to record images fairly quickly.

- While most cameras dock to the computer using a USB connector, look for cameras that offer the much faster USB 2 or FireWire ports—these can greatly improve the speed of downloading files from the camera to the computer. Another option is to buy a multi-format memory card reader; in that case you connect the reader to your computer, usually with USB 2, take the storage card out of the camera and read it in the card reader. Readers supporting up to eight card types are available for as little as \$60.

Now on to setting up that copy stand. For the best quality and greatest flexibility, you'll want a copy stand with a base at least 16" x 20"—to shoot objects up to almost that size—a camera-mount post

that allows you to securely attach the camera, pointing down, of course, at varying heights up to 30" above the base, and four small lights above the base at a 45-degree angle from the subject to provide shadowless and even lighting.

Testrite offers a number of reasonably priced copy stands, starting with its CS-4/2344 set (19" x 24" base, 38" post, four lights) at about \$429. If you need a slightly larger stand, look at the CS-9CL/50CL combo with a 30" x 40" base for about \$489. You can see or order them at www.testrite.com/CopyStands.htm.

Interestingly, the lights in many copy stands can use regular household 60-watt or 75-watt light bulbs to eliminate a lot of heat problems. At the short distances involved, that is enough light for most digital cameras. If your digital camera can't do an auto or manual custom white balance for these 3,200-degree lights, set it for daylight shooting and use an 82A filter on the lens. ■

Bob Atkinson is a prepress consultant with clients across Canada and the U.S. He can be reached at (902) 478-2205 or bobatk@hotmail.com