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Low cost consumer digital cameras finally arrive in a big way with the mail order street price of Kodak's DC20 Digital Camera dropping to around \$200. When this camera first arrived on the scene I really wasn't overly impressed, due to a much higher price, its limited features and with the quality of the images it produces and their resolution less than that of those real cool \$5,000 to \$15,000 professional cameras we've been drooling over. At the current price however this little modern day brownie makes a great addition to the family computer and is a must have item for anyone who maintains a web site that doesn't have a thousand bucks or more to spend on a digital camera. This camera is certainly no high end digital, but it gets the

job done at a cost less than any other manufacturer's entry, producing images that rival digital cameras selling for over twice the price. Simply put, the DC20 is a great little camera for your average digital shutter bug.

The DC20 I received came packaged with Kai's Power Goo and PhotoEnhancer software, flash attachment, ink jet printing paper and a serial cable to connect the camera to a computer. For the purposes of this review I am going to stick to discussing the DC20, accessories, and the basic Twain image acquisition software installed on a typical affordable family 386DX computer with four megabytes of ram running Windows 3.1 and driving a 256 color display monitor without a cd-rom. The reason for setting up the camera on such a basic system is due to the fact that I realize many of the people who use my graphical editing software "Image Magician" have just such a system. If you happen to have a newer computer system with a few extra bells and whistles you can expect fewer setup problems and increased performance not to mention be able to use all the great software which comes with the DC20.





To begin with I would like to mention, and I hope that all manufacturers of hardware and software are listening, that not everyone has a cd-rom drive installed on their computer, nor do they necessarily have an internet connection. The DC20's relatively brief documentation and the basic software necessary to get you up and running being included only on cd-rom can present a problem unless you have access to the internet so you can download the Twain driver from Kodak's web site, which by the way, I would not have known was available from their web site if I had not toured the site on several occasions in the past. The Twain driver I downloaded from Kodak was easy to install, simply a matter of running the self extracting

zip file then running the install program, everything went quickly and smoothly without a hitch. The camera will need access to your COM-2 port so if you're like myself and have your modem on that port you will need to reconfigure it to COM-3. Kodak does a very good job with documenting COM port problems on their web site and no matter how you have your machine configured you should be able to solve any problems you run into. You will probably also require a 9-25 pin COM port serial adapter if your computer is equipped with a 25 pin connector as the DC20 ships with a 9 pin connector cord.

If you don't have a cd-rom and aren't able to install the software you will need an image editing application which supports Kodak's Twain driver. My first choice was Logitech's FotoTouch software which unfortunately after I selected the DC20 Twain source only provided me with an error message telling me to contact Logitech. Just happening to have a shareware copy of Paint Shop Pro, from JASC, around I decided to give it a try and to my unexpected delight was greeted by the Kodak DC20's image acquisition window, nice and basic, just a few menu buttons and functions to choose from, real simple, I like it! Turn the camera on, click the second menu button to acquire camera images, click on the image you want to load



into your editor, click the transfer image button then edit and save your photo. One nice surprise is that you are able to leave the DC20 connected and turned on to take pictures live, there's even a software timer you can set to a 10 second delay allowing you to click on the take picture button then stand back and get in the shot yourself. It took a little effort and some experimentation to find a practical use for the DC20's timer however I found that I was able to generate an animation sequence quite easily with the assistance of Windows macro recorder. Once the animation frames were completed GIF Construction Set's Animation Wizard, from Alchemy MindWorks, was used to generate an animated GIF movie. It really would be nice if the serial cord provided by Kodak to connect the camera and computer were longer to allow for more flexibility in camera placement, but then for the price of the DC20 can we complain?



The DC20 is ready to start shooting with as soon as you pop the single 3 volt lithium battery in its compartment and depress the power on button. You only have three control buttons on the DC20, power, erase and of course a shutter button, the detachable flash accessory has its own power button. The DC20 allows you to setup the camera via Kodak's Twain software prior to use letting you choose between 8 high resolution (493 x 373 pixels) or 16 low resolution (320 x 240 pixels) pictures. You can also reset the automatic power off from Kodak's default value of 90 seconds to as long as 5 minutes thus allowing you ample time to setup your shot before the unit turns itself off. The camera is equipped with an erase

button, but it erases all images in memory when pressed, there is no provision for either viewing your images when not connected with a computer or selectively erasing them, it's a matter of all or nothing.

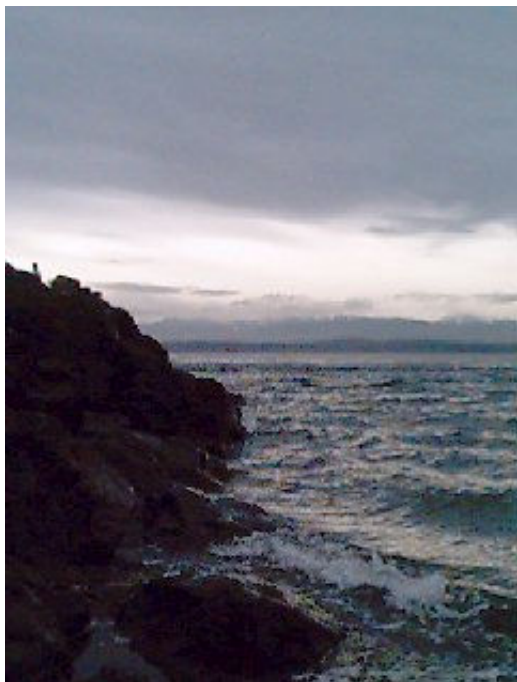
Once we have Familiarized ourselves with the DC20 and taken care of the basic hardware and software installation we're ready to take the camera for a test drive. Kodak says any subject within 20 inches to infinity is fair game although my interest in macro photography prompted me to push it to as close as 8 inches with results which I considered to be just as good as at 20 inches or more. You'll have to experiment a bit with framing extreme closeups though due to the range finder having no parallax marking to assist you. Other than possessing an ability to focus in on a subject as close as 8 inches for a little bit of macro work the DC20 has most of the idiosyncrasies of your everyday inexpensive film camera such as avoiding taking pictures directly in the direction of the sun. The shutter speed is high enough (1/4000 sec - f11) in bright light and flash to freeze an action shot while the camera's high light sensitivity (eq. ISO 800-1600) and lower shutter speeds (1/30 sec - f4) allow you to shoot indoors without the flash attachment providing the room is fairly well lighted.



The DC20 is a very basic digital camera lacking several of the features found on Kodak's more expensive digital cameras such as the DC50, just keep in mind that at the \$200.00 the DC20 is going for you can forgive one whole heck of a lot. My biggest DC20 gripe is that of image quality and resolution, although this little camera will produce what I would consider the best image quality and

resolution of any manufacture's low end digital camera I have used it still falls short of being able to capture those shots you really want to keep in your album for generations to come. For many such as myself who believe film will remain the most accurate means of professional image capture these limitations should not present a problem, if it's quality we want we'll still capture it on film then scan it anyway, no digital camera is capable of the kind of quality and resolution that film can offer or the scanned images that can be produced from such photographs. What the DC20 can provide us with are quick, small, inexpensive and fairly good quality digital images perfect for the digital image hobbyist or web site developer on a tight budget. I found the quality of the images improved dramatically when they were reduced in size, high resolution 493 x 373 images reduced to 320 x

240, and the low resolution 320 x 240 images reduced to 160 x 120. If size takes precedence over quality then I would suggest using your image editor's sharpening function. You also need to be certain to remember to use the Twain software to apply white balance correction before transferring the image as it will make a huge difference in image quality. One of the best features with this and any digital camera is that your time and maybe a battery or two is all it's going to cost to experiment with no film or processing to pay for, you do it all yourself with software on your computer, it just doesn't get any cheaper than this to take pictures, thanks Kodak.



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