

Battery Blues

Contributed by Administrator
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A while back, I made an official request at work for 100 AA batteries to test some digital cameras. My boss was reluctant to make the purchase, though; he simply couldn't imagine that I'd need that many batteries for the dozen models we were testing. He couldn't believe it, that is, until he took one of the cameras home to shoot some family photos. The very next morning, he handed me 100 batteries. Disgustedly, he told me that even though the documentation for his chosen camera promised more than an hour's worth of shooting from a fresh set of batteries, the device had pooped out on him in less than 20 minutes.

Many photographers quickly find that the actual usable battery life of their digital cameras seems unavoidably short. Those superfast, 2-second boot-ups and 4-second recycling times that you may be able to achieve with a fresh set of batteries quickly deteriorate into delays of 10 or 20 seconds--and sometimes even more. After that, the LCD viewfinder may cut out, the flash doesn't go off, and ultimately, the shutter won't click, and your image won't be saved. So why is digital-camera battery life so much shorter than that of film cameras? And even more importantly, what can be done to get more shots and playback time?

The Night the Lights Went Out

The batteries on point-and-shoot film cameras are hard at work performing a number of tasks: they power tiny autofocus and zoom lens motors; enhance the light sensor that sets the camera's shooting parameters; trigger the motorized film winder that also resets the springs on the mechanical-leaf shutter; and illuminate the built-in electronic flash. Yet even if you use a flash with every exposure, a set of cheap alkaline batteries will last for dozens of rolls. While digital cameras don't have motorized film winders, they do require power for all the other above-mentioned functions, plus a continuous flow of electricity to activate the CCD or CMOS sensor (the light-sensitive chip that replaces film), the ADC chip (Analog to Digital Converter, which digitizes images) and the DSP chip (Digital Signal Processor, which refines, assembles, and compresses images), as well as the memory chips or cards where images are written to and stored, and of course, the color LCD viewfinder screen that previews or displays images. The total power required by all of these little components adds up to considerably more than that used by a typical film camera.

Unlike film cameras where everything is done sequentially, digital-camera battery drain occurs almost instantly. When you press the capture button on a digital camera, here's what happens in the space of only a few seconds:

- The focus and exposure settings are frozen.
- The LCD viewfinder is also frozen.
- The flash is triggered.
- The image currently registering on the CCD or CMOS is off-loaded to the camera's buffer.
- The image is passed from the buffer to the ADC and converted to digital information.
- The data is filtered through the DSP.
- The data is saved on the camera's memory card.
- The flash is recharged and the shutter reset.

This massive, collective power drain kills batteries far faster than a series of smaller power dips, and ordinary, disposable alkaline batteries are sucked dry especially quickly by this sort of rapid, intense use. What's more, some digital-camera components, such as the CCD or CMOS, require peak power and won't work at all if the batteries dip below 79 percent of their full charge. This explains why alkaline batteries that have been exhausted by digital-camera use can continue to work for hours in Game Boys, radios, flashlights, and other devices without peak-power requirements.

Fight the Power Drain

So how can you extend your camera's battery life? The single most effective way is to turn off your LCD viewfinder and use the camera's optical viewfinder instead. The LCD viewfinder may seem indispensable for framing your subjects, but it can eat up as much as two-thirds of your battery life. Limit the times you review or play back those images to only when it's absolutely necessary in order to free up memory for additional shots.

Resist the urge to turn your camera off. Turning the camera on and off actually consumes more power than leaving it on. Most digital cameras allow users to adjust the Sleep mode, the time between shots when your camera automatically powers itself down or off. If possible, set this mode to the maximum rather than the minimum. (But remember that this works only if you keep the LCD viewfinder off.)

Set the Flash mode to auto or off rather than to forced flash. This eliminates the need to recharge the flash's capacitor for each shot, and the camera can recycle faster. Besides, you may get better shots with natural lighting.

If you're taking pictures in a very cold climate, heat up the batteries to body temperature by keeping them in a shirt

pocket, for example, before shooting. Conversely, if you're in the blazing heat of a desert, cool your batteries in a cooler for ten to fifteen minutes before snapping.

Use your camera's AC adapter whenever possible, especially when downloading images to a computer. Lastly and most importantly, use rechargeable batteries. You can find rechargeable nickel-metal-hydride, nickel-cadmium, or lithium-ion batteries and rechargers ranging from \$29 to \$59. It's best to buy two sets so that one can be charging while you're shooting with the other. This virtually guarantees that you'll never run out of power, forcing you to miss those precious once-in-a-lifetime shots.