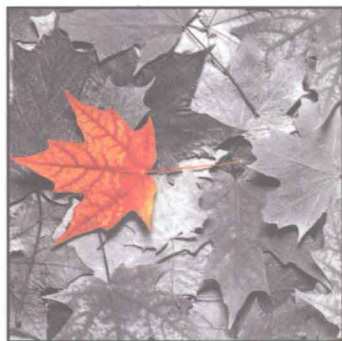
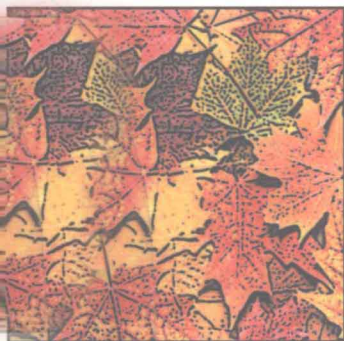


O'REILLY DIGITAL STUDIO

Digital Photography

Pocket Guide

SECOND EDITION



O'REILLY®

Derrick Story

SECOND EDITION

Digital Photography

Pocket Guide

Derrick Story

O'REILLY®

BEIJING • CAMBRIDGE • FARNHAM • KÖLN
PARIS • SEBASTOPOL • TAIPEI • TOKYO

Digital Photography Pocket Guide, Second Edition

by Derrick Story

Copyright © 2004, 2003 O'Reilly Media, Inc. All rights reserved.
Printed in the United States of America.

Published by O'Reilly Media, Inc., 1005 Gravenstein Highway North,
Sebastopol, CA 95472.

O'Reilly Media, Inc. books may be purchased for educational, business,
or sales promotional use. Online editions are also available for most titles
(*safari.oreilly.com*). For more information, contact our corporate/institutional
sales department: 800-998-9938 or *corporate@oreilly.com*.

Editor:	Robert Eckstein
Production Editor:	Philip Dangler
Cover Designer:	Emma Colby
Interior Designers:	David Futato and Melanie Wang
Photographer:	Derrick Story

Print History:

July 2003:	First Edition.
November 2003:	Second Edition.

The O'Reilly logo is a registered trademark of O'Reilly Media, Inc. The
O'Reilly Digital Studio series designations, *Digital Photography Pocket Guide*,
the image of leaves, and related trade dress are trademarks of O'Reilly Media,
Inc.

Many of the designations used by manufacturers and sellers to distinguish
their products are claimed as trademarks. Where those designations appear
in this book, and O'Reilly Media, Inc. was aware of a trademark claim, the
designations have been printed in caps or initial caps.

While every precaution has been taken in the preparation of this book, the
publisher and author assume no responsibility for errors or omissions, or for
damages resulting from the use of the information contained herein.

Who's in Charge?

When you first pick up a digital camera and hold it in your hands, many thoughts go through your head. Initially, you might wonder where the power button is, or how to turn on the LCD monitor.

Soon, you reach a crossroads with two options before you. The first is to take what you've learned about your camera in the first few minutes, and use that knowledge to take the best pictures you can. Down this path, the camera is merely an acquaintance. It is in charge and does the best it can to help you capture snapshots on vacation or at birthday parties. In return, you try not to drop it and maybe even occasionally clean its lens.

The other path is much different. The first few steps are the steps that everyone takes with a new camera. "How do I make the lens zoom?" "Where's the battery compartment?" But after a short while, you find yourself in territories previously unknown. You begin to wonder, "How can I take a close-up of that flower?" or "Can I shoot a portrait at twilight?"

This book is a friendly guide for those who want to take the second path. Down this road, you and your camera will become close friends. You'll get to know each feature and how it can help you make outstanding images. In a sense, your camera will become an extension of your vision. And that means you're the one making the decisions, not the camera.

How This Book is Organized

Chapter 1: *What Is It?*

The adventure begins like preparations for any vacation. You have to account for everything that's going to accompany you and know where it is. In Chapter 1, you'll learn every nook and cranny on your camera. Or, if you haven't purchased one yet, you'll discover the features you need and—just as important—the ones you don't.

Keep your owner's manual handy when you first review Chapter 1. It will help you find where the flash control button is located on your particular model, for instance. Once you find it, this book will show you how to use the different flash modes to take the pictures you want, not the ones the camera dictates.

Think of Chapter 1 as a detailed map. It tells you where things are and a little about what they do. It's designed for quick reference—answers while on the road. So make sure you keep this book with you. It's designed to fit easily in your camera bag or your back pocket.

Chapter 2: *What Does It Do?*

By now, you've located the flash button on your camera, and you've even read about the different modes available, such as *fill flash* and *slow synchro*. Terrific. Now when do you use fill flash? What is slow synchro good for?

Chapter 2 will help you answer those questions. By this time, you're well on your way to becoming close friends with your camera. And you might not notice it, but you've taken control of the situation. In the beginning, the camera made all the decisions. Most of the time they were adequate. Now you're in charge, and your pictures are much better as a result.

Chapter 3: *How Do I...*

Here you learn more than a dozen important camera techniques. How do you take great outdoor portraits? How can you shoot architecture like a pro? Can you take action shots with a consumer digital camera? Chapter 3 is like an ongoing conversation between two old fishing partners.

By the time you've experimented with the techniques outlined in this pocket reference, you'll have journeyed well beyond others who chose the first path. Soon you'll begin to visualize how the pictures should look in you mind, then be able to make the camera capture those images so you can share them with others. Isn't that what photography is all about—showing others the world as you see it?

The difference between these two paths is *control*. So, who's in charge: you, or the camera?



Contents

Preface: Who's in Charge?	xi
1. What Is It?	1
Front of the Camera	2
Back of the Camera	5
Top of the Camera	8
Bottom and Sides of the Camera	10
Inside the Camera	11
Battery	11
Exposure Meter	12
Image Sensor	14
Memory Cards	15
Putting It All Together	18
2. What Does It Do?	19
Taking Control of Buttons, Dials, and Menus	19
Aperture Priority Mode (AV)	20
Autoexposure	20
Burst/Continuous Shooting Mode	20
Close-Ups	23
Composition	25
Compression or Image Quality	27

Continuous Shooting Mode	28
Deleting Images	28
Digital Zoom	29
Erasing Images	29
Exposure Compensation	30
Exposure Lock	33
Exposure Metering	34
File Format	34
Film Speed	35
Flash Compensation	35
Flash Modes	35
Focus Lock	38
Format Memory Card	39
Infinity Lock	40
ISO Speed	40
JPEG	41
Macro Mode	41
Magnify Control	41
Manual Exposure Setting	42
Movie Mode	43
Panorama Mode	44
Partial Metering Area	45
Photo Effects	45
Programmed Autoexposure	48
Protect Images	48
Resolution	49
Self-Timer	50
Sequence Shooting	51
Shutter Priority	51
Spot Meter	52
Timed Value (TV)	52
White Balance	54
Zoom/Magnify Control	56
Pulling It All Together	57

3. How Do I 59

Shooting Tips and Tricks	60
Take Great Outdoor Portraits	60
Set Up Group Shots	65

Capture Existing-Light Portraits	67
Shoot Good Self-Portraits	68
Take Interesting Kid Shots	70
Capture Engaging Travel Locations	72
Take Pictures at Weddings	75
Prevent Red Eye	77
Take Pictures from the Stands of Sporting Events	78
Capture Action Shots	78
Shoot in Museums	81
Shoot Architecture Like a Pro	83
Shoot Items Using Tabletop Photography	86
Create Powerful Landscape Images	87
Shoot Infrared Images	90
Take Flash Pictures of People Who Blink at Flash	92
Computer Tips and Tricks	92
Send Pictures Via Email	92
Get Photo-Quality Prints	95
Present a Digital Slideshow	96
Working with RAW Files	97
Archive Images for Future Use	99
Where to Go From Here	100
Appendix: Quick-Reference Tables	101
Table 1. Exposure compensation reference guide	101
Table 2. Flash mode settings	102
Table 3. White balance settings	102
Table 4. Camera modes with explanation	103
Table 5. Metering modes with explanation	104
Table 6. Exposure starting points for sunset and astrophotography	104
Table 7. Megapixels to print size reference	105
Table 8. Number of pictures to capacity of memory card reference	105
Table 9. Color temperature chart in Kelvin	105
Index	107

What Is It?

Camera makers have packed lots of capability into today's digital models. The camera that you have in your hands, or the one that you're considering buying, probably has more picture-taking ability than you realize. The trick is: how do you discover that hidden potential?

The first steps are to become familiar with your camera's components, then to learn exactly what they do. This chapter explains important features and sets you on the path to mastering your digital camera.

This section looks at the components on the front, back, top, and sides of the camera. Once you're familiar with the external physical buttons and dials, you'll also learn about some of the vital internal parts, such as the image sensor and metering system.

If you're just getting started with digital photography, this information can also help you pick the right model. Each component is rated at one of three levels: *basic*, *intermediate*, or *advanced*. Make a list of the features that best suit your level of photographic experience, then use that list to help you shop. Here's a brief explanation of how each feature is rated in this chapter.

Basic features ㉓. These features should be on any digital camera you consider. Avoid a camera that doesn't include all of these components, because odds are you'll be disappointed with its performance.

Intermediate features ㉔. In addition to the basics, these features are useful if you have previous photography experience or plan to advance your skill level.

Advanced features ㉕. These features are for experienced photographers who are looking for a versatile camera that is capable of producing quality images under a variety of lighting conditions.

If you're most interested in a dependable point-and-shoot camera that costs \$300 or less, make sure the models you're considering include all the basic features in this section. Mid-level cameras usually run between \$300 and \$500 and should include most of the intermediate components; more advanced consumer models that run between \$500 and \$1,500 should have just about every item listed in this section.

Once you buy your digital camera, or *digicam*, spend some time with the owner's manual to become familiar with its unique design and how to use its controls. After that, keep this guide in your camera bag—not only does it provide a quick reference for the major components, but it will also help you understand how to use those features to take better pictures.

Front of the Camera

Figure 1-1 shows the components on the front of an intermediate-level camera. Notice that the intermediate features include an optical viewfinder, focus assist light, and a microphone port.

Here's a summary of the features that are often located on the front of the camera:

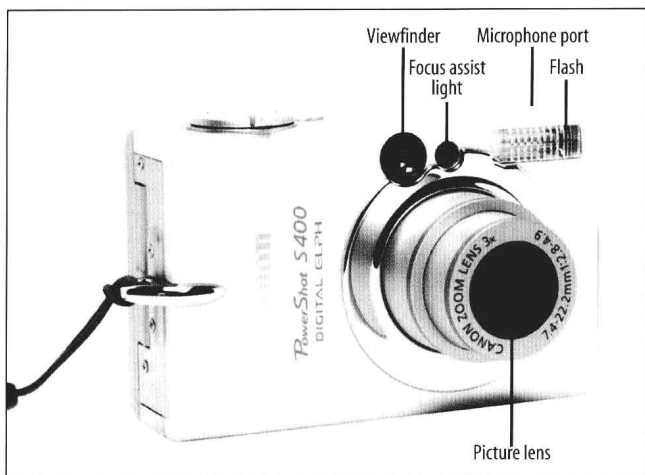


Figure 1-1. The front of an intermediate-level camera.

Flash ⑥. Provides additional light for pictures indoors, at night, or for outdoor portraits.

Focus assist light ①. Helps your camera focus in dim lighting by projecting a white beam, or a subtle pattern, onto the subject. This light may also shine during red-eye reduction flash mode and serve as the warning light when the self-timer is activated.

Infrared sensor ④. Primarily used to communicate with the remote control release for cameras that have that capability.

Optical viewfinder lens ①. Enables you to compose the picture by looking through the viewfinder lens instead of viewing the LCD monitor on the back of the camera. Using the optical viewfinder saves battery power, but it isn't quite as accurate as the LCD when framing precise compositions or close-ups.

Microphone port ①. Tiny opening on the front, top, or side of the camera used to record audio annotations and to add

sound to movie clips. Some cameras that have a *movie mode* might have a microphone, but not all do.

Picture-taking lens **B** **I** **A**. Projects the image you're shooting onto the electronic sensor where the picture is recorded. This lens also captures the image you see on the LCD monitor on the back of the camera.

Most cameras list a series of numbers on the barrel of the lens or on the body near it. The first set is usually followed by "mm" (millimeter) and looks something like this:

5.4–10.8mm or 7–21mm

These numbers represent the *zooming range* of your lens. Most consumer digital cameras have a zooming range of at least 2x or 3x. A 3x zoom lens typically has a more powerful telephoto (to bring the action closer) than a 2x zoom.

A 5.4–10.8mm lens is called a 2x *zoom* (multiply 5.4 times two), and a 7–21mm lens is a 3x *zoom*. Basic consumer models with

PRO TIP

There is no magic formula you can always apply to translate digital focal lengths to traditional 35mm numbers because the relationship is determined by the size of the camera's sensor. Camera manufacturers will usually tell you what the 35mm equivalent is. Sometimes, as with digital bodies that accept 35mm lenses, they will tell you the size of the sensor and its relationship to your existing lenses. The Canon 10D, for example, has a sensor that's smaller than 35mm film. The result is a focal length factor of 1.6x. So your standard 50mm lens becomes a 80mm telephoto when attached to the Canon 10D. A general rule of thumb is that there's a 50 percent increase from film to digital: a 14mm nominal focal length lens is around a 21mm on a digital SLR. The exceptions are high-end models such as the Canon EOS 1Ds, which have a "full size" sensor—meaning that the lens focal lengths remain the same as in 35mm photography.

a fixed focal length lens (no zoom) will have a single number, such as 7mm.

If you're familiar with 35mm photography, you can translate those digital camera focal lengths into terms that are easier to understand. A 7–21mm zoom lens in the digital world is the rough equivalent of a 35–105mm lens on your traditional SLR.

The second series of numbers usually looks something like this:

1:2.8–4.0 or 1:2.0–2.5

These numbers represent the *maximum aperture* of the lens at the wide-angle and telephoto setting. Aperture determines the amount of light that can pass through the lens to the camera sensor. Wide apertures, such as 1.8 or 2.0, allow a lot of light to pass through the lens, and are therefore better in low-light conditions. Narrower apertures, such as 5.6 or 8, allow less light through the lens and are less desirable for low-light shooting.

PRO TIP

Lens Ratings

Basic ②. Single focal length lens, such as 7mm, with a narrow maximum aperture such as 4 or 5.6.

Intermediate ①. Short zoom lens (2x) with a maximum aperture of 2.8 or 4.

Advanced ③. Longer zoom lens (3x or longer) with a maximum aperture of 2.0 or 2.5.

Back of the Camera

Figure 1-2 shows the back panel of an intermediate-level, compact camera. Most of the important functions are accessible via buttons below and to the right of the LCD monitor. This

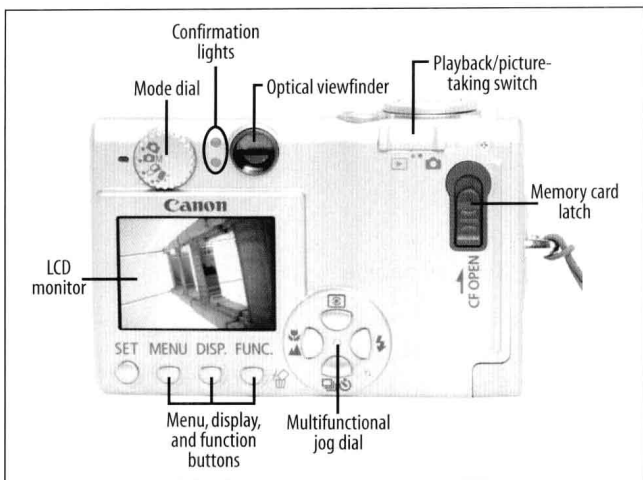


Figure 1-2. Back panel of an intermediate-level compact camera.

is an important design feature to consider when choosing a digicam, because buttons and dials allow you to make quick camera adjustments—faster than scrolling through menus on the LCD monitor.

Common back-panel components include:

Confirmation light . Shines when the camera is focused and ready to fire, or when the flash is ready. Blinking indicator lights usually suggest that you need to make an adjustment before taking the picture.

Diopter adjustment . Allows for manual adjustment of the optical viewfinder to best suit your vision. This feature is usually included only on more advanced cameras.

Display on/off button . Enables you to turn off the display to conserve battery power. This button often has a third option that provides for the display of camera data on the screen while composing the picture. You can typically cycle through these different settings by pushing the button repeatedly.

LCD monitor ⑧. Allows for precise framing of the subject, as the image is captured directly through the picture-taking lens. You should always use the LCD monitor in macro mode (for close-ups) or when using the digital zoom function. The LCD monitor is also used for reviewing pictures you've already captured. Most LCD monitors, however, aren't effective in direct sunlight. The image is hard to see. If you shoot lots of outdoor pictures, make sure you have an optical viewfinder as well.

Menu button ⑧. Activates the on-screen menu that enables you to set the various functions of the camera. Most likely, you'll use the multifunctional jog dial to navigate through those menus.

Mode dial ⑧. Allows you to select various picture-taking and picture-reviewing modes.

Multifunctional jog dial ①. Allows you to navigate through on-screen menus by pressing the four directional buttons. Sometimes jog dial buttons have two sets of functions: one set for changing settings while in picture-taking mode, and the other for making adjustments in picture-viewing mode. Look for little icons next to the jog dial buttons. They usually represent the functions associated with those buttons in picture-taking mode.

Optical viewfinder ①. Lets you compose the picture by looking through a separate viewfinder lens instead of the LCD monitor on the back of the camera. Using the optical viewfinder saves battery power, but it isn't quite as accurate for framing precise compositions or close-ups. The optical viewfinder is very useful when shooting outdoors in direct sunlight, because LCD monitors don't fare well under these conditions and are difficult to see.

Set or confirmation button ⑧. Press this to confirm a choice. Most cameras insist that you confirm all selections before enabling them. This button is particularly important

when erasing pictures, as it makes it impossible to delete a picture by inadvertently pressing the erase button.

Trash button **B**. Removes the current picture displayed on the LCD monitor. This button doesn't usually remove all pictures on a memory card; you have to select the "erase all" function via the onscreen menu.

Top of the Camera

The top deck design of digital cameras can vary widely depending on their features. The Olympus camera illustrated in Figure 1-3, for example, is an advanced amateur/pro model that provides an LCD information screen, mode dial, hot shoe, and button controls on both the top deck and back panel of the camera. Also notice that the LCD monitor swings upward, which offers more flexibility when framing the picture.

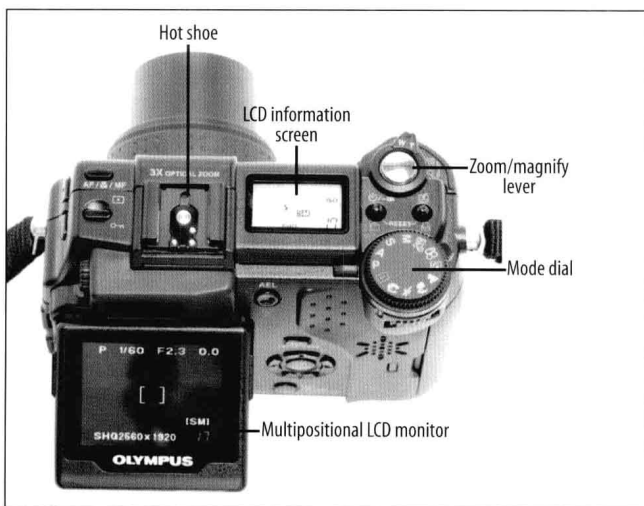


Figure 1-3. The top deck of an advanced amateur camera.