

The Friedman Archives Press

THE COMPLETE GUIDE TO SONY'S

ALPHA 100

DIGITAL SLR CAMERA
AND THE ALPHA-MOUNT SYSTEM

BY GARY L.
FRIEDMAN



"THE FRIENDLY MANUAL
WITH PROFESSIONAL INSIGHTS"

The Complete Guide to

Sony's Alpha 100 Digital SLR Camera

And the Alpha-mount System

“The Friendly Manual with Professional Insights”

Version 1.3.2

ISBN 0-9790196-0-5

Published By

Gary L. Friedman – The Friedman Archives Press

Copyright © 2006 Gary L. Friedman. All rights reserved. No portion of this book may be reproduced either in print or in any digital format without express written permission. Please visit The Friedman Archives at www.FriedmanArchives.com

Dedication

*This book is dedicated to my wife Carol,
who has put up with the foibles
consistent with those of a photographer
and a writer.*



Gratitude

I would like to thank the following for their invaluable contributions to the quality of this undertaking, for this and previous versions of the book:

Tom Hudgins
Ryan Montgomery
John Felts
Norm Fisher
George Lippman
Bob German
Tony Turnbull
Mladen Sever
David Anderson

Lena, Louisa, and Julia Friedman (three of
my favorite nieces)
Joel and Yong Steres
Dory and John Clark
Jeff Ferris
Seth Vallas
Evi Blueth and Ivan Tentchoff
Kua Wittman
Phil Bradon of Konica Minolta USA

About the Author

Gary L. Friedman is a professional photographer who has traveled the world with his Minolta (and now, Sony) cameras. He runs the stock image website www.FriedmanArchives.com, and travels the world giving seminars on digital photography aimed primarily at beginners who wish to learn the basics and improve their creative photography.

Before graduating to photography he was a rocket scientist for NASA's Jet Propulsion Laboratory, where he patented the image authentication system now used in high-end digital cameras. He has been published in books, newspapers and magazines worldwide, and was listed in the Guinness Book of World Records while in college (go ahead and search the FriedmanArchives.com website if you want to find out what he did to get included).

Despite his mastery of the technical background, Mr. Friedman has an approachable and easy-going teaching style that makes his books a pleasure to read.



Hit “Control-L” now to view this ebook in full-screen mode.

(Hit “ESC” to exit full-screen mode.)

Hardcopy owners: Ignore the above. Just turn the page.

Table of Contents

CHAPTER 0 - INTRODUCTION	17
THE GOALS OF THIS EBOOK.....	18
CHAPTER 1 – THE ALPHA 100 IN A NUTSHELL	21
INTRODUCTION	22
MAJOR FEATURES.....	23
SUPER STEADYSHOT™	23
ANTI-DUST.....	26
WIRELESS FLASH.....	26
RESPONSIVENESS	27
DYNAMIC RANGE OPTIMIZATION AND ZONE MATCHING	27
SMALLER AND LIGHTER	29
SCENE SELECTION MODES	29
SOME ESSENTIAL HISTORY ABOUT SONY, MINOLTA, KONICA MINOLTA, AND CARL ZEISS	32
LENSES	36
CROP FACTOR	39
SONY AND MINOLTA LENS NOMENCLATURE	42
FREQUENTLY ASKED QUESTIONS ABOUT LENSES	44
SUMMARY OF CHAPTER 1	46

CHAPTER 2 – THE BASIC GUIDE FOR THE IMPATIENT USER	47
CONTROLS	48
SHORTHAND NOTATION.....	53
POWER SAVE MODES	53
AUTO SETTING	58
PROGRAM (“P”) MODE	61
THE “IMAGES REMAINING COUNTER”	61
INSTANT PLAYBACK	62
FOCUSING BASICS.....	63
HOW DOES THE CAMERA KNOW WHAT TO FOCUS ON?	64
THE FOCUSING SENSORS	67
AUTOFOCUS PRIORITY / RELEASE PRIORITY	67
BATTERIES.....	69
FLASH.....	70
SELF-TIMER	71
THE “RESET” FEATURE.....	73
SUMMARY OF CHAPTER 2	75
CHAPTER 3 – AFTER YOU HAVE TAKEN YOUR PICTURES	77
VIEWING YOUR PICTURES WHILE THEY’RE STILL IN THE CAMERA	79
DELETING AN IMAGE (OR MULTIPLE IMAGES).....	81
PROTECTING AN IMAGE	84
HOW THE IMAGE INFORMATION IS DISPLAYED – THE DISPLAY BUTTON.....	85
OTHER WAYS TO VIEW PICTURES	88
HAVING YOUR PICTURES PRINTED AT A 1-HOUR PHOTO LAB.....	90

GENERATING AN INDEX PRINT	93
CANCELING DPOF FILES	93
DOWNLOADING PICTURES TO YOUR COMPUTER.....	94
EPILOGUE	97
SUMMARY OF CHAPTER 3	98
CHAPTER 4 – SOME BASICS OF PHOTOGRAPHY	99
HERE WE GO... ..	100
SHUTTER SPEEDS	102
SHUTTER PRIORITY MODE.....	106
SPORTS PROGRAM MODE	106
F/STOPS.....	108
APERTURE PRIORITY MODE.....	111
WHAT YOU SEE IS NOT ALWAYS WHAT YOU GET	113
DEPTH OF FIELD PREVIEW	115
SO, IN SUMMARY... ..	121
TRADEOFFS	122
ISO– HOW SENSITIVE IS THE CAMERA TO LIGHT?	124
EXPOSURE COMPENSATION	128
PROGRAM SHIFT	130
TIME EXPOSURES.....	132
THE SCENE SELECTION MODES	139
SPORTS PROGRAM MODE	139
SUNSET MODE.....	139
PORTRAIT MODE	141

MACRO MODE.....	143
LANDSCAPE MODE.....	144
NIGHT VIEW / PORTRAIT MODE	145
SUMMARY OF SCENE SELECTION MODES	148
SUMMARY OF CHAPTER 4	149
CHAPTER 5 – REALLY COOL ADVANCED FUNCTIONS	151
FOCUSING MODES	152
SINGLE AND CONTINUOUS WITH SUBJECT TRACKING	152
WHY BOTHER WITH MANUAL FOCUSING?	154
DMF – DIRECT MANUAL FOCUS.....	155
SPOT METERING AND EXPOSURE LOCK.....	156
BASIC EXPOSURE LOCK – THE AEL BUTTON.....	157
SPOT METERING.....	158
SUPER STEADYSHOT™.....	162
WHITE BALANCE	165
AUTO WHITE BALANCE	166
TWEAKING THE PRE-SET WHITE BALANCE.....	169
WHITE BALANCE BRACKETING	187
CUSTOM WHITE BALANCE	170
THE “K” SETTING.....	171
FLASH, FILL FLASH, AND WIRELESS FLASH.....	172
1) AND 2) AUTO FLASH AND FILL FLASH	173
3) RED-EYE REDUCTION MODE	177
4) REAR SYNC FLASH.....	179

5) WIRELESS FLASH	180
6) AND 7) ADI AND PRE-FLASH TTL	182
DRIVE MODES	184
SINGLE-FRAME MODE.....	184
CONTINUOUS ADVANCE MODE	185
BRACKETING	185
ADVANCED TOPICS: THE HISTOGRAM DISPLAY	188
BRIGHTNESS RANGE, SENSORS, AND THE HUMAN EYE	188
USE THE HISTOGRAM FOR A FIN(D)ER DEGREE OF CONTROL	192
DYNAMIC RANGE OPTIMIZATION	200
COLOR / DEC: IN-CAMERA IMAGE-TWEAKING SETTINGS	203
COLOR SPACE.....	204
PORTRAIT, LANDSCAPE, SUNSET, NIGHT VIEW, AND B&W MODES	207
CONTRAST SETTING	210
SATURATION SETTING	211
SHARPNESS SETTING	212
COMBINING SETTINGS.....	214
ZONE MATCHING	215
MY PERSONAL CAMERA SETTINGS.....	218
MENU SETTINGS.....	218
FUNCTION DIAL SETTINGS	223
SUMMARY OF CHAPTER 5	225
CHAPTER 6 – THE “SECRETS” OF LIGHT AND COMPOSITION	227
WRITING WITH LIGHT	229

COMPOSITION – THE RULE OF THIRDS	235
TEXTURE	241
OUT OF PLACE SHOT	241
CLASSICAL PORTRAIT	242
ENVIRONMENTAL PORTRAIT	242
SUMMARY OF CHAPTER 6	244
CHAPTER 7 – WIRELESS FLASH	245
INTRODUCTION	246
HOW TO USE WIRELESS FLASH	252
HOW DOES IT WORK?	254
WILL THE PRE-FLASH BURSTS AFFECT THE EXPOSURE?	258
HOW TO DO “RATIO FLASH” FOR PROFESSIONAL LIGHTING RESULTS	260
BOUNCE FLASH	261
LIGHT MODIFIERS	262
MANUAL FLASH MODE (HVL-56AM ONLY)	265
HIGH SPEED SYNCH (HSS) FLASH	269
HOW TO ACTIVATE HSS	271
ANOTHER EXAMPLE	273
EPILOGUE	274
SUMMARY OF CHAPTER 7	275
CHAPTER 8 – DIGITAL IMAGING CONCEPTS EXPLAINED	277
FILE FORMAT EXECUTIVE SUMMARY FOR THE IMPATIENT READER	278
THE CHAPTER BEGINS	278

“WHAT’S A PIXEL? WHAT’S A MEGAPIXEL?”	279
“HOW MANY MEGAPIXELS ARE ENOUGH?”	280
FILE TYPES	282
JPG COMPRESSION ARTIFACTS	286
IMAGE SIZE	291
IMAGE SIZE AND RESOLUTION	292
MEMORY CARDS	295
COMPACT FLASH (CF)	295
MEMORY STICK FLAVORS	296
MEMORY CARD CORRUPTION ISSUES	299
DUST ON THE SENSOR	300
“HOT PIXELS”	304
SUMMARY OF CHAPTER 8	305
CHAPTER 9 – AN INTRODUCTION TO PICTURE MOTION BROWSER SOFTWARE	307
INTRODUCTION	308
AFTER YOU INSTALL	310
AUTOMATICALLY TRANSFER YOUR IMAGES	311
BROWSE YOUR IMAGES	312
BASIC EDITING	317
ROTATING AND CROPPING	317
ADJUSTING THE TONE CURVES AND THE COLOR BALANCE	319
SHARPNESS	331
PRINTING	335
OTHER EDITING SOFTWARE	335

RAW CONVERSION.....	336
SUMMARY OF CHAPTER 9	340
CHAPTER 10 – ADDITIONAL RESOURCES	341
INTERNET FORUMS AND DISCUSSION BOARDS	341
THREE OUTSTANDING IMAGING MAGAZINES	343
25 WAYS TO “WOW!” E-BOOKLET	344
THE FRIEDMAN ARCHIVES SEMINARS	347
BOOKS ON PREVIOUS CAMERAS	350
THE ROAD TO CHINA	351
APPENDIX A – A BRIEF HISTORY OF MINOLTA INNOVATION	355
APPENDIX B – A “COOKBOOK” FOR SPECIAL SHOOTING SITUATIONS	371
INTRODUCTION	372
FIREWORKS	373
ARTISTIC WATERFALLS	374
STAGE PERFORMANCES / ROCK CONCERTS	375
NIGHTTIME TIME EXPOSURES.....	376
SHOOTING IN SNOW	377
OUTDOOR GROUP PORTRAITS.....	378
STREET PHOTOGRAPHY	379
I-DON’T-WANT-TO-TWEAK-MY-IMAGES-IN-MY-COMPUTER MODE.....	380
SUNSETS AND SILHOUETTES	381
THE MOON	382

NIGHTTIME SPORTS	383
CHRISTMAS LIGHTS (OR ANY OTHER TYPE OF NIGHTTIME LIGHTS)	385
PRODUCT SHOTS	386
INTERIORS THAT SELL	387
LIGHTNING	388
CANDLELIGHT SHOTS	390
 INDEX	 391



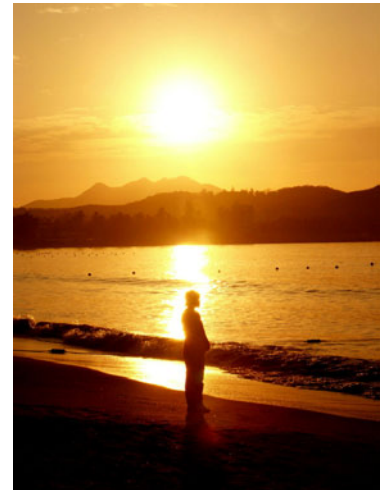
Chapter 0

Introduction

Welcome to the new frontier of Digital Photography!

You are about to embark upon a journey that relatively few have been able to enjoy in the history of the art of photography. The masters of film-based photography had to spend inordinate amounts of time studying the characteristics of film, chemistry, the various methods of developing and printing, and countless more hours in darkrooms perfecting their craft to get *exactly* what they wanted. But modern or aspiring artists can achieve the same degree of control in a fraction of the time using a digital camera, desktop computer, and a photo-quality printer.

Digital photography also gives you two other significant advantages over the old ways of doing things – it gives you INSTANT feedback about how your image looks, and it COSTS NOTHING to experiment and try some creative or even crazy ideas. If you're not satisfied with the image, just hit the 'Delete' key!



Without question, these two benefits alone make the journey of learning photography infinitely more enjoyable and more accessible to those who may have been intimidated by the old, arduous ways of doing things.

Thankfully, some things about photography will never change. Ninety-five percent of what makes a good photograph still remains composition and light. All that intimidating technical stuff that you always hear about – f/stops, shutter speeds, film speed, exposure modes, aperture priority, etc. – that only constitutes about five percent. So, in addition to explaining how to use your Sony Alpha digital camera, this book will also explain the basics of what makes a good picture. Armed with this information, you have the potential to improve your picture-taking ability.

The Goals of this Ebook

This book is written for the newcomer to digital photography who wants to get the most out of their investment in one of the best digital cameras available. It's also for the person who wants to concentrate on the joy of taking better pictures, and who doesn't necessarily want to start off with all that techno-babble that seems to dominate most instruction books. (At least not until you're halfway through this one! ☺) It is my goal to share the secrets of better pictures with you in a way that is neither intimidating nor condescending; but rather in a way that is illuminating, with all the puns that phrase entails.

Of course, the other aim of this book is to de-mystify all those buttons, functions, modes, and settings on your Sony Alpha 100 digital camera. Each has a purpose and an effect, and I will provide examples of both. Once you become more familiar with this most impressive optical and electronic instrument,

you will be able to go from having a vague image in your mind to achieving the precise effect you want in a relatively small amount of time.

You will find that this book is purposely organized in layers – that is, a subject might be touched on early, and then additional detail will be added in later chapters. To understand why I introduce complex topics this way, think back to how we were taught about Christopher Columbus as we were growing up. In first grade, we were simply taught that he “discovered America”. In third grade we learned that he theorized the world was round. In fourth grade, it surfaced that he was actually looking for India, and that this was probably the world’s most famous and luckiest mistake. In middle school we noticed that his famous voyage coincided with the expulsion of the Jews from Spain. Then in high school we learned that his crew brought several devastating diseases to the New World. Graduate students in history later learn that he, like other explorers of his day, was greedy for glory and wanted to plunder all of Haiti.

Why aren’t we taught all of these facts at once? Because that is not how the human brain works – we all absorb information and learn in stages, from the most general to the more specific. That’s why information on how the flash works appears in three places; that’s why an introduction to the jargon of digital photography is sprinkled throughout. That is why some topics are covered lightly at first and then in more detail later on.

Finally, a word about the scope of this book. In traditional photography, taking the picture was just the first step in a long process of producing an artful photograph. In order to cover the topic thoroughly, one would also have to discuss different types of film, developing time and temperature, and how it affects the heel-toe curve of the negative. Then, we would have to discuss how to match that curve to the scene being photographed, followed by discussing the endless darkroom techniques involved in making the print: paper and developer selection, dodging, burning, contrast modification, toning, and so

on. It was enough to scare away (or at least thoroughly intimidate) many a beginner. Similarly, digital photography is an almost boundless topic. It covers areas such as the physiology of perception, sensor design, image compression and post-processing, printing, color space and color matching, anti-aliasing and “digital optics”, image manipulation techniques, storage and archiving. And there are more comprehensive books on the market which try very hard to cover it all!

The purpose of this book is to be a friendly and easily accessible instruction manual for your Sony digital camera. However, it is NOT designed to replace the manual outright! Many advanced yet obscure features, such as how to change the name of the directory the images are stored on, will not be included. This is based on the premise that if you know enough to want that function, you also can understand the original manual’s explanation.

This book will provide you with a good introduction to the world of digital photography, and will be your friendly guide to help you get the most out of your investment. So, let’s begin!

Chapter 1

The Alpha 100 in a Nutshell

A tour of the highlights, with more detail in subsequent chapters.

This chapter will cover the following topics:

- Introduction to the Alpha 100 and available lenses
- A high-level tour of the camera's most noteworthy features
- A brief history of the Minolta camera system and which products are compatible with the Sony system.

Introduction

Congratulations on your purchase of a very unique camera! The Sony Alpha 100 DSLR camera represents Sony's very first digital camera with interchangeable lenses. (Well, that's a little misleading...for although it is the first DSLR with Sony's name is on it, it actually represents the next-generation of the Konica Minolta digital camera heritage. So what you own is already a mature technology platform. You'll be reading more about the history of the Alpha mount camera later in this chapter.) The Alpha series is targeted toward high-end users – people who are serious about the images they produce, who are exacting about image quality, and are ready to take full control of their

What's an SLR? - The term "Single-Lens Reflex" (SLR) is technical jargon which means "there's a mirror in the camera body that flips out of the way at the exact moment you take a picture". The mirror (which is visible when you remove the lens) is there so that you can see EXACTLY what the lens sees before you take the picture. This allows for precise composition, and it also means you can see your subject clearly when you have high-magnification lenses attached. Before SLRs were invented you had to change viewfinders every time you changed lenses, which was a time-consuming hassle that only allowed for approximate framing when shooting close-ups (see example to the right). When film was replaced with a digital sensor, the Digital SLR (DSLR) was born, retaining all the historic benefits of using the same lens for focus, composition, and measuring light. Rejoice!



photography in a way that mere point-and-shoot cameras simply will not allow. Not only is the Alpha 100 (which will sometimes be referred to as “A100” throughout this book) easy to use and FAST, it also takes the full range of autofocus lenses made by Sony, Minolta, Konica Minolta, and Carl Zeiss -- a considerable collection!!

Major Features

Most DSLR cameras look and act alike. What sets one apart from another? This section answers that question.

Super SteadyShot™

Super SteadyShot™ is an ingenious invention which is designed to give you a slight edge when it comes to eliminating the blur sometimes caused by shaky hands. Basically, when a long telephoto lens is used (like about 200mm or greater), it's more than just the image that gets magnified – the shakiness of the hands is amplified as well. (This is why professional photographers often use tripods when they use telephoto lenses – to eliminate the shake.) The camera's engineers have cleverly incorporated devices into the camera body which can not only detect when the camera is shaking, but can also measure how much and in



Figure 1-1: A handheld shot with a long lens in poor light, saved by Super SteadyShot.

which direction. Tiny piezo actuators move the digital image sensor in the equal but opposite direction as the detected movement, effectively canceling out the shake! This is a phenomenal engineering achievement, and the photographic world has graced this invention with many accolades.

It should be noted that the Super SteadyShot feature, as brilliant as it is, is not a panacea. It will not nullify all camera shake in all situations, and it does not mean you can throw away your tripod. Before Super SteadyShot was invented, there was a rule-of-thumb in photography regarding how to get sharp-looking pictures: If you're using a shutter speed above



Figure 1-2: Super SteadyShot can make the difference between a sharp shot you can sell and a slightly blurry one that you can't. It will have the greatest impact in "borderline" situations (as explained in the text). (See page 158 for a comparison of an image taken with this feature ON and OFF.)

$1/(\text{the focal length of the lens})$, your picture will probably not be affected by hand shakiness. For example, if you're shooting with a 200mm telephoto lens, your shutter speed should be $1/200^{\text{th}}$ of a second or faster to ensure a sharp image. (If there's not enough light for that, you should use a tripod to ensure sharpness.) On the other hand, if you're shooting with a 28mm wide angle lens, you can get sharp-looking handheld shots if your shutter speed is $1/28^{\text{th}}$ of a second or faster. (If you're not familiar with the concept of shutter speeds, don't worry; they are explained in detail in Chapter 4.)

With the Super SteadyShot feature engaged, it gives you the ability to shoot handheld at shutter speeds 2 to 3 times slower than with the established rule of thumb. In the example above, where you could

AMAZING ENGINEERING: When Super SteadyShot technology was first introduced as “Anti-Shake” in the Minolta A1 camera in 2003, it was a marvel of control systems engineering. But compared to designing it for a DSLR, that achievement was relatively easy! After all, the A1 had a smaller sensor, and did not have a shutter or mirror, two mechanisms that are notorious for adding vibration to a camera. So imagine having to design a camera with vibration-inducing components and then having to counteract *that* in addition to the already difficult task of dampening hand shake!

No small task, but the camera's engineers did it. One trick they used was to use a smaller mirror and shutter (after all, the sensor is smaller, so why not the mirror?), which produces less vibration. Another trick was to reduce the high-end shutter speeds and the flash synch speed, resulting in even lower levels of vibration.

So if you ever meet an engineer on the Alpha design team, bow down in respect for their tremendous achievement!

only shoot at 1/200th of a second or faster, with Super SteadyShot you can safely shoot at 1/60th of a second or faster. When the available light is low, this can make the difference between getting a sharp shot or not! (See **Figure 1-1** and **Figure 1-2** for examples of shots where Super SteadyShot has made a difference in my shooting. 2/3rds of these shots were taken with a 500mm lens, handheld, on a day with miserable light.) (If you want to see a BEFORE and AFTER comparison using this feature, Chapter 5 has it on page 162.)

Anti-Dust

When shooting in the great outdoors and changing lenses a lot, there is a chance that some dust might get on the digital sensor, with the dust showing up in exactly the same spot shot after shot after shot. (A concept discussed in more detail in Chapter 8.) Using the sensor's ability to shake (as it does when Super SteadyShot is active), a more intense shaking is induced to shake off that dust. While not always 100% effective, it will do a darn good job most of the time, and may save you from having to resort to professional sensor cleaning.

Wireless flash

I cannot emphasize enough the significance of this innovation. (In fact, this topic is so important that I have devoted an entire chapter to it!) With wireless flash the camera can communicate with other off-camera flashes wirelessly using long- and short-burst flash pulses, and the ability to determine exposure completely automatically. It offers endless creative possibilities requiring almost no technical knowledge, and puts a lot of the fun back into learning and experimenting. Although competing camera brands are catching up, Sony is still the only manufacturer (as of this writing) whose tiny built-in pop-up flash can communicate with and control the big, off-camera flashes, saving the user (you) lots of

money by not having to buy a big flash to act simply as an on-camera flash controller. Sony is also the only manufacturer to allow “High Speed Sync” (HSS) – the ability to shoot flash at substantially faster shutter speeds than in the past) with the flashes in wireless mode; AND everything works properly even when the sensor is moving when Super SteadyShot is on!! This is yet another phenomenal engineering achievement.

Responsiveness

Photographing children, animals, or sports? Shooting subjects where the “decisive moment” can make or break a shot? The Alpha 100 is *significantly faster* than its Konica Minolta 5D and 7D predecessors. The A100 also has one of the largest and brightest viewfinders for this class of camera, and its LCD screen is as big as it gets (as of this writing).

If you’ve only used point-and-shoots in the past, then you will also be pleasantly surprised at how swiftly the A100 reacts to your shooting desires. Better yet, this camera has almost negligible “shutter lag time”, which is the amount of time which passes between when the shutter button is pressed and when the camera actually takes the picture. Your anxiety while shooting children’s portraits and animal shots will go way down when you graduate from a point-and-shoot to an Alpha DSLR.

Dynamic Range Optimization and Zone Matching

These two features, like Super SteadyShot, continue to set this camera apart. They are both designed to tackle the age-old problem of making images look the way we remember seeing them. (As you’ll learn from reading this book, this is actually a difficult problem!)

Dynamic Range Optimization is a new feature for DSLRs, and the A100 is the first to have it. Very simply, in certain circumstances, after you have taken your picture, the camera will examine the brightness range of the image and, if it feels the image will benefit, will attempt to lighten some of the shadows. DRO has two settings (as described in Chapter 5), and you can see it in action in **Figure 1-3**.

Zone Matching is an earlier Konica Minolta innovation which was designed to artificially expand the tonal range that can be captured with the digital sensor. This feature was designed with wedding photographers in mind, since their challenge in life is to capture all the details of a white dress or a black tux – two difficult things for a digital camera!

Both Dynamic Range Optimization and Zone Matching are described in greater detail in Chapter 5, on pages 200 and 215.



[OFF]



DRO



DRO+

Figure 1-3: Dynamic Range Optimization at work. DRO processes the image in-camera and automatically lightens some of the shadows in certain circumstances.

Smaller and Lighter

The Alpha 100 is considerably smaller and lighter than many competing DSLRs without sacrificing any significant features. One way it achieves its lower weight is by using lighter materials – polycarbonate instead of aluminum, which is just as precise and even more durable. The Alpha 100 also employs a 5-sided mirror feeding the viewfinder, whereas others use a specially-shaped solid block of glass called a pentaprism (which is much heavier!). None of these factors has any impact on the quality of the images; which is why the optimizations are so welcome to a traveling photographer.

Scene Selection Modes

Don't want to think too much? The Alpha 100 offers you special “Scene Selection Modes” which many DSLRs don't offer – you tell the camera what kind of picture you're taking, and it will set the optimum parameters for that kind of shot. The Alpha 100 offers sports program mode, a scenic mode, a nighttime flash exposure mode, and a mode specifically designed to optimize pictures at sunset. It also offers a Black-and-White shooting mode and a white balance bracketing mode, too! While the “old pros” know how to achieve these effects using conventional camera controls, these new “Scene Selection Modes” make it easy for the beginner to dial in the kind of image they want without needing a technical background. All of these special modes are described in greater detail in Chapter 4.



TRAVEL TIP #1: How to Make New Friends - Before the advent of digital cameras, whenever I traveled to foreign countries I would always take a Polaroid camera with me. It allowed me to make friends easily (especially in a country where I didn't speak the language). In practice, I'd look like a foreigner (not hard if you're an American), make eye contact, smile, say, "Hello!", and then do a lot of miming to ask if it's OK to take their picture. I'd take my first picture with the Polaroid, and then share it with them. A faster connection with a stranger cannot be made. This was sometimes followed by one or two more shots (sometimes group shots with the photographer included as well!). Then the good camera came out, and I'd take the pictures I wanted to keep for myself. I'd give the subject the Polaroid images as a "Thank you" memento, and everyone went away happy. As a result of using this technique, my online image gallery (www.FriedmanArchives.com) is filled with pictures of happy people from countries all over the world without the usual camera shyness or inhibition. (See Figure 1-4).

Well, the Alpha 100 has the "Polaroid" quality built right in!! Whenever someone sees me taking a picture, I almost always use the large screen to show them the picture I just took. This produces no end of smiles and (usually) a willingness to pose for the next shot, making the subjects significantly more relaxed! If the subject is unusually enthusiastic I will often get an email address and send them the image the very same night if possible. Here's a case where digital photography tremendously improves on the experiences of the traveler!



Figure 1-4: Take advantage of digital photography's ability to "Warm Up" your subjects for the most natural poses. (The shot on the right used the old Polaroid technique; see TIP previous page.)

Some Essential History about Sony, Minolta, Konica Minolta, and Carl Zeiss

The Sony Alpha system is actually based on the technically outstanding Minolta (later named “Konica Minolta” after a merger) Alpha SLR platform. (Minolta named their cameras “Alpha” in Japan, “Dynax” in Europe, and “Maxxum” in North America.) Minolta made outstanding cameras and manufactured their own optics, the vast majority of which were a serious match for any competition. Life was good.

TIP: Scratch Protection for the LCD Display – Although the rear LCD has a wonderful anti-glare coating on it, it is very prone to scratching and contracting skin oils from your nose. I have found a wonderful product which keeps the screen in pristine condition as it protects it from daily use without compromising on clarity or in-field performance.

Office supply stores carry several clear plastic sheet products designed for protecting the surface of stylus-based Personal Digital Assistants (like the Palm Pilot or iPAQ). These sheets do not employ adhesives (like scotch tape does); rather, after you cut them down to match the display’s size, they adhere to the screen and provide adequate protection without affecting the image quality. Should the protective plastic sheet ever get scratched, all you have to do is peel it off and replace it. Sometimes air bubbles may develop underneath, but it has absolutely no negative impact when the display is on and you’re evaluating the sharpness of the image you just took. Now you can use your camera worry-free!! And if it ever comes time to sell your camera, just remove the plastic protective sheet so that the camera will have that “new LCD display” appearance.

Two brands which I have used are Fellowes Write Right and Belkin ClearScreen Overlays. (The Belkin is a better deal, you get more sheets and they even include a display cleaning cloth. Nice touch!)

In fact, Minolta had a remarkable history of innovation and achievement. Historically, they had been one of the few companies to mine their own glass for their lenses, and they had designed (and in some cases also manufactured) camera bodies and lenses for Leica, the Rolls Royce of camera brands. They were one of the very early pioneers in DSLRs. Over the years they had managed to out-distance long-time competitors such as Pentax, Konica (pre-merger), and Olympus in the 35mm SLR market space, putting them in the #3 spot in this very competitive arena. They even had achieved major market share with handheld light meters in the professional motion picture industry. A more comprehensive listing of Minolta's historic innovations can be found in Appendix A.

Anyway, despite a huge history of innovation, Konica Minolta's camera division was losing money (mostly, it seems, because of an autofocus patent lawsuit that they lost to Honeywell and the immense amount of R&D needed to be competitive in the DSLR market), and so in April 2006 Konica Minolta pulled out of the market altogether, concentrating its efforts on the more profitable business copier product lines. Sony, wanting to break into the high-end camera market, took over the design, production, and marketing of KM's highly acclaimed DSLR products. They also took over most of the camera and lens factories and hired many of the engineers and other employees. So, most long-time Minolta users (like me) were ecstatic because it meant that my huge investment in Minolta Autofocus lenses and flashes would still be compatible with Sony's DSLR offerings!

But wait... it gets better. For many years Sony had the rights to use the Carl Zeiss name on their lenses, a brand that is so revered in the photographic world that many discuss it with religious fervor. Before World War II, this German optical company was producing some of the best optics in its day, relying on brilliantly hand-designed and handcrafted elements before the days of multi-coatings or computerized optical design. Their legendary optics were used exclusively for Medium format cameras like Hasselblad and in high-end Contax 35mm film cameras. For over 50 years, professional photographers

worldwide coveted Zeiss lenses. And now, the well-respected Zeiss optical company is making autofocus lenses for the Sony DSLR camera mount!

So now, when choosing accessories for your Sony Alpha camera body, you can choose from not one but THREE different major brand names:

- All Minolta and Konica Minolta AF (autofocus) lenses (there are over 16 million of them out there)
- All Sony AF lenses
- All Zeiss lenses designed for the Alpha mount

In addition, there are two brand names you can tap into for accessory flashes:

- The Minolta D-series flashes (specifically the 5600 HS(D) and the 3600 HS(D); none of the older Minolta flashes will work properly)
- The Sony flashes HVL-F56M and HVL-F36M (which are identical to the Minolta 5600 HS(D) and 3600 HS(D) listed above)

(There are 3rd party flashes available as well, such as those from Metz and Sigma, but some (okay, one) of these have been known to be incompatible in obscure areas, like using High-Speed Sync in wireless mode. If all you need is a simple flash, then these are good choices too.)

TRAVEL TIP #2: Better than Bread Crumbs! I was wandering around the streets of a Cuban fishing village with my DSLR, and was surprised and impressed at how willing and helpful people were when I asked permission to take their picture. Although my Spanish was pretty poor, when striking up small conversations I learned that one subject was a musician. I instantly whipped out my Xaphoon (a small wind instrument which I carry everywhere) and started playing a few notes. He became so excited that he brought me up to his apartment and started going through his old photographs - and there was a picture of him when he was a band leader during Cuba's heyday! The portrait I took of him just then (right) is my favorite image from the entire collection.

Alas, this side trip had caused me to become separated from the three others I was traveling with, and of course I had not taken any mental navigation notes since I figured my friends would know the way back. I WAS LOST!! After wandering aimlessly for two hours without recognizing a single landmark, I suddenly realized that I had taken many "bread crumb" pictures on my camera -- each image showing scenes from the path I had traversed. At the very beginning of the day I took a picture of the family we were staying with. I called up the image and stopped a random bystander: "*Donde está ésta familia?*" ("Where is this family?") Being a small village everyone knew everyone else, and the man kindly walked me to the very house I was seeking. Saved by my DSLR and the kindness of strangers!



Lenses

If you're new to DSLR photography, you may become easily overwhelmed with the different kinds of lenses available. What's a "D" or a "G" lens? What does "APO" mean? Are there any advantages to a lens that doesn't zoom? What focal lengths are useful for different kinds of shots?

Let's start with the last question. Have a look at **Figure 1-5**, which shows several pictures taken from one spot using a variety of lenses.

While everyone's needs are different, lenses can be broadly described as belonging to three general categories: "Wide", "Normal", and "Telephoto". But there is no hard rule regarding how these are classified. Generally, "Normal" can be anywhere in the range of 45mm to 70mm (ideal for general purpose photography); lenses with lower numbers tend to be considered as "Wide" (ideal for architectural or landscape images), and those with higher numbers are considered "Telephoto" (great for sports, nature, or spying).

There are also a number of lenses out there that have no ability to "zoom". In the olden days (like before 1975) these "fixed focal length" lenses offered the best optical performance money could buy; and professionals would use them exclusively. With the advent of computer design and significantly improved manufacturing technology, however, "variable focal length" zoom lenses have practically caught up in terms of image quality, and more than make up for any loss of quality by sheer convenience. With zoom lenses you don't have to move closer or further away from your subject to frame it the way you want it; instead you can just stand where you want, turn a zoom ring until you see the composition you want, and take the picture. I use zoom lenses almost exclusively now.

So you want to order a new lens online or a used one on ebay. How can you tell which lenses are compatible with your camera? Below I'll discuss things you'll need to know when choosing a lens.

The usual terminology gives the focal length (how far away or close-up an image will look (see **Figure 1-5** next page)); and also the maximum aperture of the lens. For example, you might see a lens described as a 50 mm f/1.7 or a 300 mm f/2.8. " The first number - 50 mm or 300 mm - is the focal length and the second "number" - f/1.7 or f/2.8 - is the aperture. (Yes, both numbers are necessary.) So for example, if you're looking for a 50mm lens on ebay, you're likely to find that there are 50mm f/1.7 lenses, 50mm f/1.4 lenses, and 50mm f/2.8 lenses! Often times the units of the focal length - mm - will be left off since all lenses are measured the same. In addition, the f/ part of the aperture measurement will often be skipped to minimize the number of characters used to describe a lens. So, you might see a lens listed as a 50 1.7 or a 300 2.8.

Zoom lenses will actually list *two* numbers for the focal length, the number representing how wide it will go, and the number representing the closest it will go, usually separated by a hyphen. So a 28-85 f/2.8 lens is 28mm on the wide side and will zoom in to 85mm, with a maximum f/stop of f/2.8. To make it even more confusing, sometimes zoom lenses will change the maximum f/stop as you zoom in; such as the 24-105 f/3.5-4.5. In this case, the two apertures listed are the maximum f/stop when wide, and then the maximum f/stop when zoomed in (again, separated by a hyphen).

Another important point to discuss is the image magnification factor – often called the “Crop Factor” – of lenses that were designed for use on cameras using 35mm film. I'll talk about that next, then I'll help you sort through the lens nomenclature starting on page 42.



11mm



18mm



28mm



75mm



100mm



200mm



300mm



500mm

Figure 1-5: Standing in one place, a variety of different lenses will provide you different levels of magnification.

Crop Factor

The first thing to be aware of is that pictures taken on an Alpha 100 camera body will look more “zoomed in” than using the same lens with the same settings on a film camera body. (This is true of most DSLRs.) This is because the sensor used in the Alpha 100 is smaller than that of a full 35mm frame. Have a look at **Figure 1-6** and the illustration shown in **Figure 1-7**, which shows how pictures taken with the film camera captures more area than the same lens on a digital camera, because the digital camera’s sensor is that much smaller.



Figure 1-6: The camera on the left is the Minolta 7 film camera, whereas the camera on the right is the Alpha 100. Notice that the mirror on the film camera is larger than on the digital; so too is the sensor smaller behind it (which you can’t see in this picture). This is the reason that all lenses have a 1.5x “Crop factor”. The text has more info.

Here’s a more detailed (some of you might think “more long-winded”) explanation: A standard lens is designed to produce an image that is large enough to completely cover the size of a 35mm negative. When you put a smaller digital sensor in place of the 35mm negative (as you do with a digital camera, since full-size sensors are so expensive to manufacture), the sensor will only be able to ‘see’ a subset of what the lens produces. The result is a sensor that sees less of the scene than what the lens can produce – think of it as in-camera cropping, or in-camera zooming (the effect is the same!). The upshot is that a 50mm lens on a film camera will appear to act as a 75mm lens on a digital camera, and a 200mm lens will behave the same as a 300mm lens on a film body. This is the “focal length magnification” factor that you may have read about; for the Alpha 100 camera the focal length is effectively multiplied by 1.5.

This is great news if you're a sports or nature photographer, for when shooting digital your 200mm lens suddenly becomes a 300mm lens. It can be bad news for travel and architecture photographers, however, for it means the wide angle lens they use to capture entire interiors will no longer capture the whole room, and in small rooms there's no way to "step back" a few feet to get more into the picture!

To address the problem of capturing images with a wide field of view, Sony (plus many 3rd party lens manufacturers) are coming up with some wide-angle lenses that are designed specifically for digital cameras. Such lenses actually capture what seems like a super-wide view (like an 11mm lens) so they will still provide a decent wide

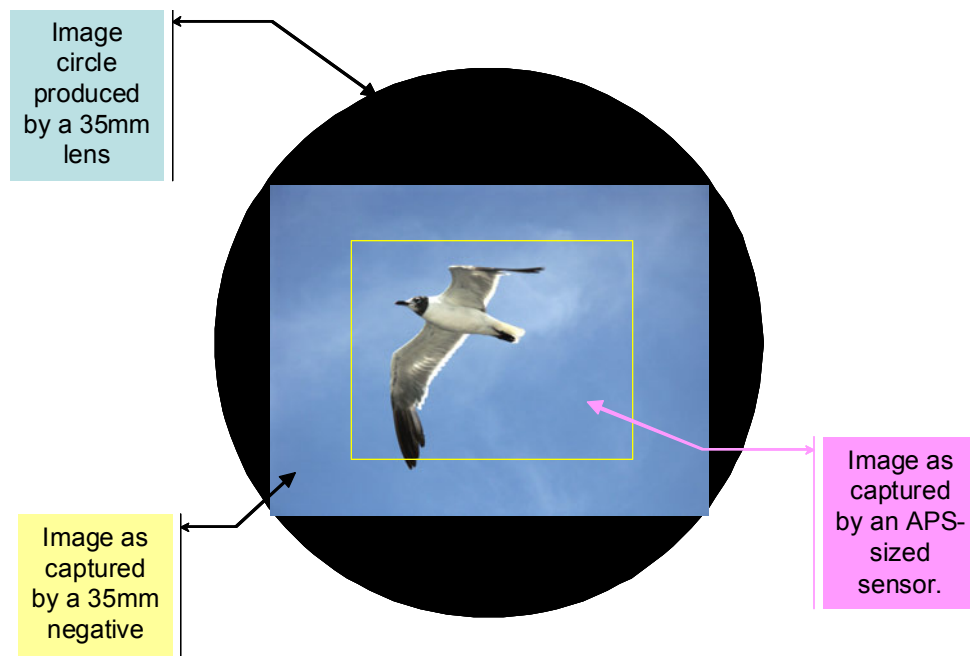


Figure 1-7: The sensor in the Alpha 100 is smaller than that of a standard 35mm frame, resulting in images that look more "zoomed in" when shot in digital. This is what's behind the 1.5 "magnification" factor when using 35mm lenses on small-sensor digital cameras.

angle after the focal length magnification has kicked in. (For example, a 17mm lens will have a “35mm equivalent” focal length of 26mm, giving it the properties of a mild wide angle lens.) Such lenses are also designed to provide only enough image to cover the digital sensor, and *not* fill up the frame of a 35mm negative! In fact, if you were to put a ‘designed for digital’ lens on a 35mm film camera, you would probably experience severe “vignetting” – a central image with black corners and edges - not unlike how the movies portray someone looking through a pair of binoculars.

There are other differences, too. “Designed for Digital” lenses have rear glass elements which are flat, more coated than usual, and designed to make all light rays travel perpendicular to the CCD for maximum image quality and illumination in the corners. They are also designed to minimize the internal reflections that sometimes arise because of the highly reflective nature of the sensor.

So while the Sony Alpha 100 can take every AF lens that Minolta has ever made, the newer “designed for digital” lenses *cannot* be used with the older Minolta film cameras or with any future DSLR which has a “full frame” (same size as 35mm) sensor.



Sony and Minolta Lens Nomenclature

There is a lot of “nomenclature” involved with Sony’s lens labeling – for example, the 100-300 APO (D) or the 70-200mm f2.8 APO G SSM AF (now *that’s* a mouthful!). What does it all mean? Here’s a quick guide to decode it all.

- DT – This is a brand new designation for “Digital Technology”. These optics are optimized for the unique needs of the digital sensor – the rear element is recessed somewhat to minimize internal reflections, the exit rays tend to be perpendicular to the sensor (especially in the corners), and (and this is VERY important!) the optics only generate an image circle large enough for the camera’s image sensor, NOT large enough to cover a 35mm frame. This tactic saves cost and weight, and makes the lens easier to manufacture.
- APO – Normal glass will bend light much like a prism does – the red colors get bent a little more than the violet, and all colors in between are bent at different rates. This is fine for average lenses where the precision of the image is not super-critical; but in long telephoto lenses this phenomenon can contribute to slightly fuzzy images. A really, really sharp picture requires that all optical rays converge on the same point – an extremely difficult task if the light is bent differently for different wavelengths. Enter the APOchromatic glass element, or APO for short – this kind of glass bends all visible light waves by the same amount, producing noticeably sharper images than equivalent lenses using standard optical glass. A lens marked “APO” means it has one or more optical elements made of this special material.
- G – This is Sony’s designation for their “Pro” line of lenses – they can be rather expensive, but they are the best to be found anywhere from any manufacturer. I own several.

- SSM – There are some high-end “G” lenses which incorporate a SuperSonic Motor (SSM) in the lens. Having the focusing motor in the lens (rather than in the body, which drives autofocus on all the other lenses) can help long telephoto lenses focus faster, more quietly, and reduce the strain on the focusing motor residing in the camera body.
 - D – “D” stands for “Distance”; it means that the lens will tell the camera body to what focusing distance the lens is set. (Yes, believe it or not, with early autofocus bodies, although the camera could tell when the subject was in focus, the camera had no idea how far away the subject was!) This is a relatively new feature; it was introduced in the year 2000 to help make flash exposures more accurate when shooting with highly reflective backgrounds, and is essential for the ADI flash mode (explained in Chapter 5) to work properly. All new Sony and Zeiss lenses will have the “D” feature.
 - AF – This just means “Autofocus”, and is used to distinguish it from Minolta’s older “MC”, “MD”, or “MF” manual-focus lens mounts. Since the lens mount was changed completely when Autofocus was introduced (in 1985), a manual-focus lens cannot be used on an autofocus body.
 - Macro – This means “it can focus closely”. Macro lenses are ideal for taking pictures of insects and other small objects which fill the frame.
 - Reflex (Also called “mirror” lens) - This means the lens is designed primarily using curved optical mirrors rather than lenses. This is similar to the design of large observatory telescope lenses. Reflex mirrors are incredibly lightweight and small compared to their pure-optical brethren. And it should be noted that Sony / Minolta offers the ONLY autofocus Reflex lens in the world – the 500mm f/8.
-

- RS (Restyled – Minolta only) – This means that Minolta took an established optical design and “updated” the housing, incorporating new features like “D” (distance) encoding and/or faster focusing mechanism.

Frequently Asked Questions about Lenses

Q: Gee, that’s an awful lot of nomenclature! Was someone drunk when they came up with this stuff?

A: Hey, that’s nothing – you should see all the different labels that Nikon has on their lens lineup!

Q: So if the Zeiss brand is so great, what does that say about my existing Sony or Minolta “G” lenses?

A: In the world of optics, Minolta (also Sony, since all of the initial Sony-brand lens offerings are Minolta designs)) could hold its own. You’re comparing a Ferrari with a Lamborghini here – both are outstanding, and in fact in order to see a difference you have to zoom in (like 1,000x magnification) on a small portion of identical images just to have a hope of seeing a difference. Then you usually have to squint. My friends, *nobody* looks at photos in the real world that way, and making the discernment of these differences is an increasingly inconsequential exercise!

It is SO very tempting to become overly-obsessed about optics – in fact I have taught many classes in the past where participants who gloated about their high-end optics often produced the least interesting pictures to show to the class (I guess that’s why they were taking my class in the first place ☺). And in my career, nobody has ever said to me “Gee, that’s an outstanding picture, but it looks like you didn’t use a [insert arbitrary adjective] lens. So, we will pay you less money!”

So please don't make the mistake of worrying about "the absolute best optics" to the exclusion of all else! While quality optics are important, Chapter 6 will demonstrate that high-quality light is far more essential. Few people can tell the difference between G and Zeiss optics when looking at enlarged photos. Both brands of lenses are outstanding choices.

If you are a beginner and find yourself obsessing about which is the absolute sharpest lens to get, *stop that nonsense now!* Read the rest of this book, and experiment a lot using what you already have. If you need better lenses down the road, you will know it, and the internet newsgroups (some of which are listed in Chapter 10 – Additional Resources) will provide no shortage of advice and opinion.

TIP: Cheap but great lenses. Since it is sometimes necessary to optimize a lens' design for digital photography, one may wonder if some of the older Minolta designs which worked great on film cameras will also work great on digital bodies.

Internet forums can be a great place to learn from other peoples' experiences. While all of Minolta's lenses work great on film cameras, here are the inexpensive lenses which users say work exceptionally well on the digital bodies:

- * 24-50 f/4
- * 70-210 f/4 (affectionately known as the "beer can")
- * 28-75 f/2.8 (a phenomenal performer for a low price!)
- * 35-200mm xi (surprisingly!) This lens also has a motorized zoom feature.
- * 50mm f/1.7 – sharp sharp sharp, and cheap cheap cheap!

On the flip side, beware of some older Sigma and other 3rd party lenses, as some will not work on newer bodies! Also, Minolta's older (pre-1985) manual-focus lenses, having nomenclature like "Rokkor", "MF", "MC", or "MD", will not fit onto the Alpha body.

Summary of Chapter 1

In this chapter we glossed over a lot of things which will be explained more fully in subsequent chapters. Here's what to expect from the rest of this book:

Chapter 2: The Basic Guide for the Impatient User

Chapter 3: After you've taken your pictures

Chapter 4: The Basics of Photography (what f/stops and shutter speeds are)

Chapter 5: Really Cool Advanced Functions

Chapter 6: The "Secrets" of Light and Composition

Chapter 7: Wireless Flash (yes, a whole chapter!)

Chapter 8: Digital Imaging Concepts de-Mystified (what's RAW? What's JPEG?)

Chapter 9: An Introduction to Sony's Picture Motion Browser Software that came with your camera

Chapter 10: Other Resources

By the time you finish this book, you'll have the knowledge and technique to get the most out of your very capable tool, and the artistic skills to dramatically improve your pictures.

Chapter 2

The Basic Guide for the Impatient User

Confidently begin using your camera right away!

This chapter will discuss the most basic controls, so that you can go out and take pictures confidently. We will cover:

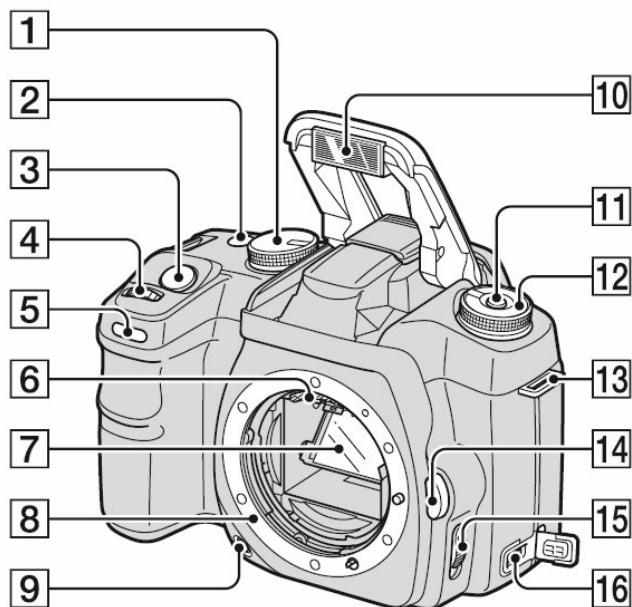
- Names of controls
- AUTO setting
- Program ("P") mode
- The "film" counter
- The power saving settings
- Focusing Basics
- Batteries
- Flash
- Self-timer
- The "Reset" feature

Okay, so you just bought your new Alpha 100 and there are all of these buttons, knobs, and menu screens. Where does one start to understand it all? Right here, my friend. This Chapter will go over the most important controls, so that you can get the most out of your camera right away.

Keep in mind that this information will help you to take even better pictures when coupled with the secrets of light and composition, covered later on in this book in Chapter 6.

Controls

The names of the controls used throughout this book are identical to the way Sony identifies them in their instruction books (reproduced below). **Figure 2-1** through **Figure 2-4** show the control layout for the Alpha 100.



- 1** Mode dial (31)
- 2** (Drive) button (60)
- 3** Shutter button (→ *step 5 in “Read This First”*)
- 4** Control dial (33, 94)
- 5** Self-timer lamp (62)
- 6** Lens contacts*
- 7** Mirror*
- 8** Lens mount
- 9** Depth-of-field preview button (70)
- 10** Built-in flash* (→ *step 5 in “Read This First”*)
- 11** Fn (Function) button (43)
- 12** Function dial (42)
- 13** Hook for shoulder strap (21)
- 14** Lens release button (→ *step 2 in “Read This First”*)
- 15** Focus mode switch (71)
- 16** DC-IN terminal (144)

Figure 2-1.: Alpha 100 Control Layout. (Front)

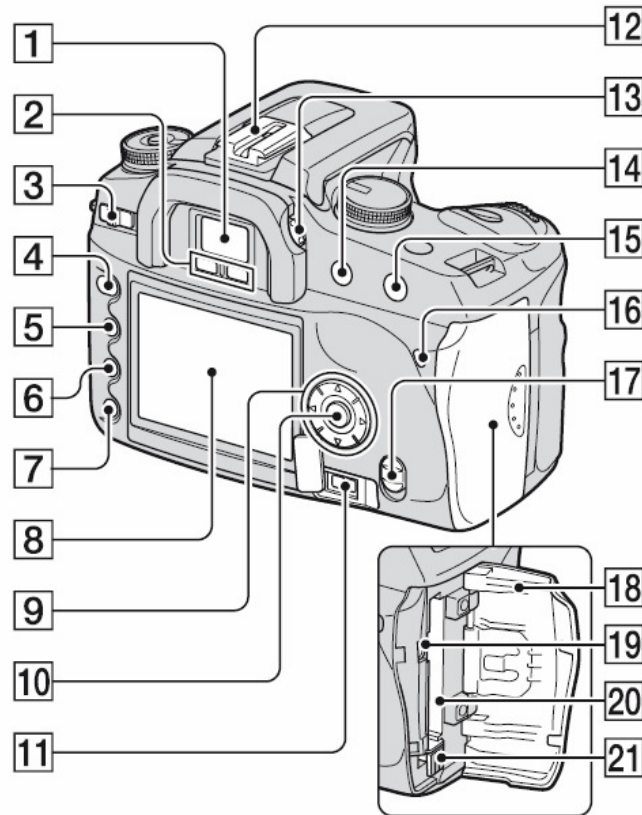


Figure 2-2: Alpha 100 Control Layout. (Rear)

- 1 Viewfinder (→ *step 5 in “Read This First”*)
- 2 Eyepiece sensors (97)
- 3 POWER switch (→ *step 3 in “Read This First”*)
- 4 MENU button (80)
- 5  (Display) button (26, 72)
- 6  (Delete) button (→ *step 6 in “Read This First”*)
- 7  (Playback) button (→ *step 6 in “Read This First”*)
- 8 LCD monitor (22, 26)
- 9 Controller (///) (→ *step 3 in “Read This First”*)
 For viewing:  (Histogram) button (74)
 (Rotate) button (76)
- 10 Center button (→ *step 3 in “Read This First”*)/Spot-AF button (51)
- 11 REMOTE (Remote-control) jack (144)
- 12 Accessory shoe (145)
- 13 Diopter-adjustment dial (→ *step 5 in “Read This First”*)
- 14 For shooting: +/- (Exposure) button (37, 65)
 For viewing:  (Reduce) button (72, 77)
- 15 For shooting: AEL (AE lock) button (39, 67)
 For viewing:  (Enlarge) button (77)
- 16 Access lamp (→ *step 4 in “Read This First”*)
- 17  (Super SteadyShot) switch (→ *step 5 in “Read This First”*)
- 18 CF card cover (→ *step 4 in “Read This First”*)
- 19 VIDEO/USB jack (78, 108)
- 20 CF card insertion slot (→ *step 4 in “Read This First”*)
- 21 CF card eject lever (→ *step 4 in “Read This First”*)

Figure 2-3: Alpha 100 Control Legend (Rear)

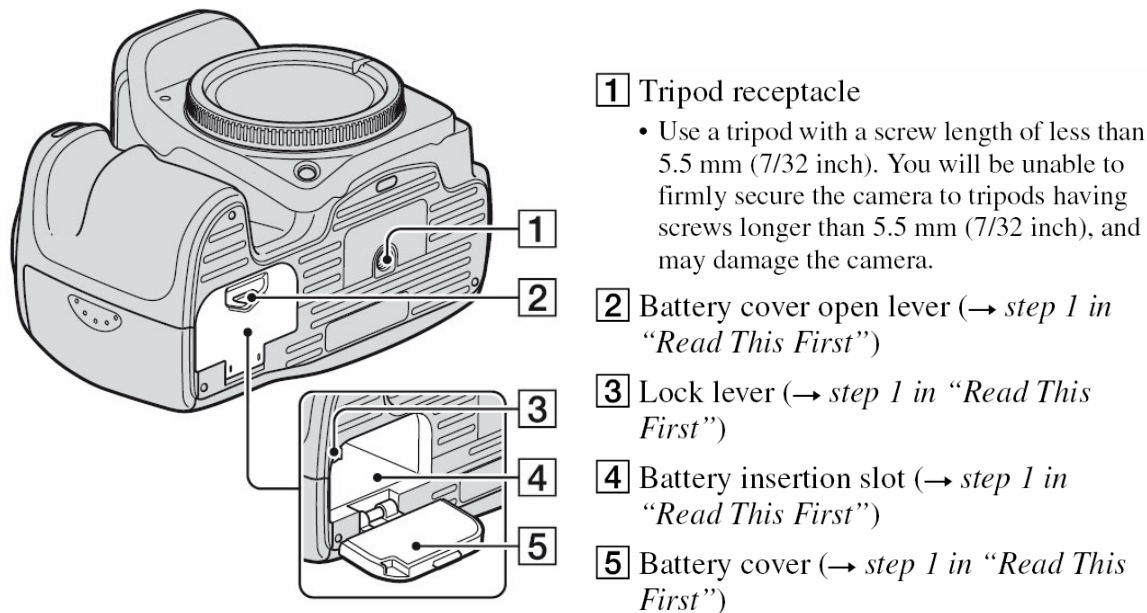


Figure 2-4: Alpha 100 Control Legend (Bottom)

Shorthand Notation

Before we start off with some of the most important basic controls, allow me to introduce some shorthand notation that will be used throughout the rest of this book. I'll demonstrate this shorthand by walking you through how to change two menu settings that affect power consumption.

Power Save modes

When I first started using digital cameras in the early days, I quickly discovered that the batteries didn't last very long, and I was obsessed with doing everything I could to make the batteries last as long as possible out in the field.

The A100, in contrast, is NOT a battery hog at all. (In fact I was able to get over 500 shots with the pop-up flash on a single charge! But because I am paranoid, I still like to tweak all the settings to ensure I squeeze every last ounce of battery power I can. For example, the camera automatically puts itself into "low power" mode if none of its buttons have been pressed for a certain number of minutes. After that time, the power consumption is so negligible that it's as good as having it OFF. You can change the "Power Save" settings to 1, 3, 5, 10, or 30 minutes via the camera's menus. I'll show you how to do it

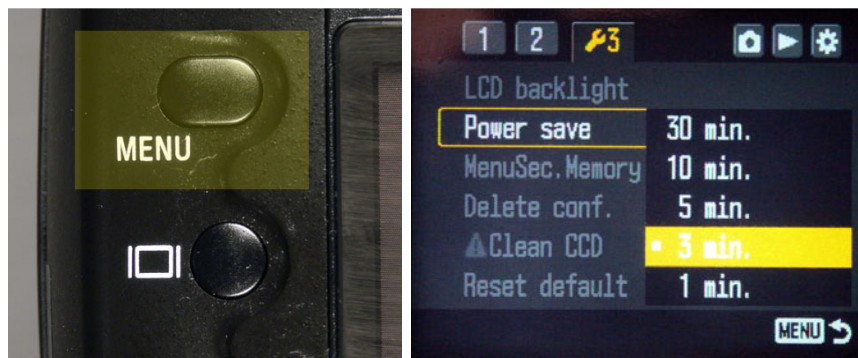


Figure 2-5: The MENU button (left), and how it looks when you change the Power Save setting (right).

now, and in doing so I will introduce to you the shorthand menu notation that will be used throughout the rest of this book:

MENU → **SETUP (ORANGE MENU)** → **3** → **POWER SAVE** → [Select a value; default is “3”]

Here’s how to interpret this shorthand: This represents the list of nested screens you must traverse in order to get to the setting you want to change.

1. To start, hit the MENU button (**Figure 2-5a**). This will bring up the menu on the back of the screen in the **RED** (camera settings) menu.
2. Hit the right-arrow button on the controller (the round one on the back) four times, this will take you past **RED** menu 2, the Playback menu, the “Custom” menu (which looks like an icon of the Sun), and finally the “Adjustable Wrench” **ORANGE** tool icon in the upper right-hand corner.
3. Click the center button on the controller to take you to the **ORANGE** menus.
4. Hit the right-arrow button on the controller two times, until you get to **ORANGE** menu **3**.
5. Hit the down-arrow button on the controller until the **POWER SAVE** setting is highlighted.
6. Hit the right-arrow button on the controller to display the possible settings: in this example, you should see 1 min., 3 min., 5 min., 10 min., and 30 min. (**Figure 2-5b**)
7. Use the up/down arrow buttons on the controller to select the setting you want. (In this example, let’s select “1 min.” as your power-off amount.)
8. Press the center button on the controller to confirm that the highlighted setting is the one you want.
9. Hit the Menu button again to take you out of menu mode and return to taking pictures.

Notice that there is no “Leave the camera on forever” setting – not even if the camera is plugged into the wall using the optional AC adapter! It shouldn’t matter. Should it time out all you have to do is press the shutter release button halfway to have everything pop back to life exactly as you left it. Power Save mode is so stingy that if I’m shooting all day I always leave the camera ON – in fact, leaving it on all day actually uses less power than turning the camera on and off all day (which forces a focus motor

Interesting Aside: Just to be thorough, I measured the battery consumption for different operating modes on the A100, to see which aspect of operation drew the most power. There were some surprises! Here are the results:

Full "ON" (LCD brightness at +0):	250 mA
Full "ON" (LCD brightness at MAX):	250 mA (no change!)
CPU on but LCD off:	125 mA
CPU Standby mode (after 3 minutes)	0.175 mA
6s exposure with Antishake ON	450 mA
6s exposure with Antishake OFF	200 mA

Surprise #1 was that AS uses twice as much battery power than without; however exposures are so brief that this will not have a meaningful effect on battery life in the field.

Surprise #2 was that turning up the LCD brightness all the way didn't seem to have any effect on power consumption (perhaps it was negligible compared to all the other stuff that was going on with the CPU going full blast.)

However, keep the LCD brightness set to its factory default of +0. If it is brighter, pictures tend to look overexposed when you play them back.

whirr and other mechanical checks that consume power each time you turn it on.)

Let's try changing another setting using the menu short-hand notation we just introduced. This one will change the amount of time before the rear display turns off its backlight, and the green display inside the viewfinder turns off:

MENU → SETUP (ORANGE MENU) → 3 → LCDBacklight → (Select a value)

To “wake up” the camera again, merely press the shutter release button halfway.

What's the difference between these two power-saving features, I hear you ask? (A reasonable question, since the camera behavior appears the same – that is, OFF!) The LCD Backlight function turns off the backlight and the LED's in the viewfinder – two battery drains I thought were significant before doing the power usage measurements two pages ago. The other – Power Save, actually turns the camera's internal computer OFF for even greater power savings. When both are off your battery savings are greatest.

Interesting Aside #2: The A100 has two tiny rectangular LEDs below the viewfinder, as shown in Figure 2-6. One of the LEDs is an infrared light; the other one is an infrared sensor. Although you can't see the light yourself, when any object (such as your face) comes within close proximity to the viewfinder, the object will reflect the infrared light back to the camera, and will be sensed by the infrared receiver. This is actually a battery-saving feature, it assures that the camera only turns on the rear LCD readout when (or if) you remove your eye from the viewfinder. It is also responsible for telling the camera to start autofocus immediately if Eye-Start is enabled.

But this mechanism might back-fire on you and actually consume more battery power than necessary if you don't use it properly. For example, if you wear the camera around your neck, or if you hold the camera in your hand and let it relax by your side (with the LEDs facing your body), the camera might incorrectly assume that you are holding it up to your eye, and start focusing needlessly. If this happens to you, either modify your camera holding behavior or turn off this feature using **MENU → 1 → Eye-Start AF → Off**.



Figure 2-6: Eye-near-the-viewfinder sensor

AUTO setting

Let's start with the most basic operating mode. Your camera has a mode of taking pictures in a completely automatic manner, which requires no knowledge of other, complicated camera settings on your part. It is called the "AUTO" setting (**Figure 2-7**). What does this do? Think of the AUTO mode as a convenient RESET button – it resets most of the adjustable controls to default values immediately. To see why this is valuable, allow me to relate to you an example from when I was traveling in China using an earlier digital camera from 2003:

There I was, shooting an indoor scene with lots of bells and whistles activated – the two second self-timer was on, the incandescent white balance was set, spot focus was on, Aperture Priority was set to f/11, and exposure compensation was set to underexpose by 1 stop. (Don't worry; we cover all of these concepts later.) Suddenly, through the open front door, I heard a mild commotion. I grabbed my camera and went out to investigate. Outside it was bright and sunny, and to reset each of those parameters one by one would have taken at least 30 seconds, if I was fully concentrating. There was not enough time to really think about exposure modes or anything else – I had barely enough time to snap off a few frames before the "event" ceased. (See **Figure 2-8**).

AUTO mode to the rescue!! No matter what state your camera is in, if you need to get back to normal *in a hurry* just move to AUTO mode and shoot away!! This setting will reset almost every user-changeable feature, even if the knobs and buttons show different settings, so you can shoot the moment and not have to worry about, "Did I remember to reset mode Q?" Once



Figure 2-7: The Green "AUTO" mode.

you're finished shooting, you can move right back to your previous exposure mode and all of your previous settings are restored! *In other words, AUTO mode essentially puts the camera into "Point and Shoot" mode, and is ideal when handing the camera to someone else to take a picture of you!*



Figure 2-8: Why the Green "AUTO" modes exist – to quickly reset the camera to a known mode so you can Get The Shot.

Here is a summary of what happens to the camera's settings when you go into **AUTO** mode (don't worry; many of these concepts will be explained more thoroughly in Chapters 4 and 5):

- Fill-flash or red-eye reduction (depending on a menu setting)
- Flash mode set to “ADI”
- 40-segment honeycomb “Multi-segment” metering
- Wide-area focus (the camera chooses which focus sensor to use)
- Single-frame advance
- Flash compensation reset to 0
- Exposure compensation reset to 0
- Auto white balance
- ISO (the camera's sensitivity to light) reset to “Auto”
- Image size set to “L” (Large) size and “Fine” image quality
- Color mode set to “Standard”; Digital effects reset to 0
- Noise reduction is reset to ON.

Program (“P”) Mode

This is almost identical to the AUTO mode described earlier. The “P” setting puts the camera into “Program Mode”. In Program mode, the camera decides what combination of shutter speed and f/stop to use based upon the ambient light, the currently set ISO sensitivity, and what the lens is zoomed to. (Note: Most of these concepts are explained thoroughly in Chapter 4.) The only difference between Program and the AUTO mode is that *Program mode remembers settings that you have changed*, whereas AUTO mode does not.

To take a proper picture in this mode, just point the camera at the subject, and press the shutter release button. *Make sure you hold the shutter release button down until the camera takes the picture!* In the camera’s default setting, it will autofocus first before taking the picture.

The “Images Remaining Counter”

I’m referring specifically to the number in the lower-right-hand corner of the LCD display. Unlike a normal film counter in a camera, this counter (**Figure 2-9**) counts BACKWARDS, always showing you *how many images you have left* (approximately) based on the current image settings and how much space is left on your memory card.



Figure 2-9: The “Image Remaining Counter”.

Instant Playback

Tired of pushing the “Play” button after each shot to check it? Here’s a handy feature that will automatically show you the last image you took the second you remove your eye from the viewfinder: **MENU → 1 → Instant Playback → [Choose a duration]**. I keep mine set to 10 seconds which allows plenty of time to show your subjects the picture you just took. If you want the playback image to go away sooner, just hit the shutter release button halfway.

TIP: If you find yourself running low on memory (i.e., the counter is showing single-digits) and you wish to maximize the memory space you have left, you can always tell the camera to record a ‘smaller’ image from now on (MENU → 1 → Image Size → [You can choose between Large, Medium, and Small. Choose something smaller than what you’re currently set to]) and/or change the Quality setting to Standard (MENU → 1 → Quality → Standard). The quality might be a little lower, but you’ll be able to squeeze a lot more pictures into the memory space you have left. Besides, you’d be surprised how good even the lowest size and quality can be!

Focusing Basics

Focusing with this camera is no different from focusing with any other autofocus camera, be it film or digital. There are two popular methods:

The point-and-shoot method: point the camera at the subject, press and hold the shutter release button down all the way until the camera finds focus and takes the picture. Although this is the easiest way to take a picture, it also takes the longest time – sometimes up to a full second (depending on many factors) to take the picture. If you're looking to capture just the right expression at just the right time, this is probably *not* the way to go.

The smarter method: you can do what's called “pre-focusing”. Once the camera is pre-focused, it will take the picture the instant you press the shutter release button.

TIP: If you've ever said to yourself “I thought I had a tighter composition than THAT!” when looking through your shots, you may very well be right. It turns out that the A100's viewfinder shows you about 98% of what will be captured by the sensor. I did a quick test by putting the camera on a tripod and affixing grey duct tape on the wall just outside the viewfinder's field of view. The fact that the tape can be seen (along with the sky, which also did not appear in the viewfinder) indicates that more is captured than meets the eye.

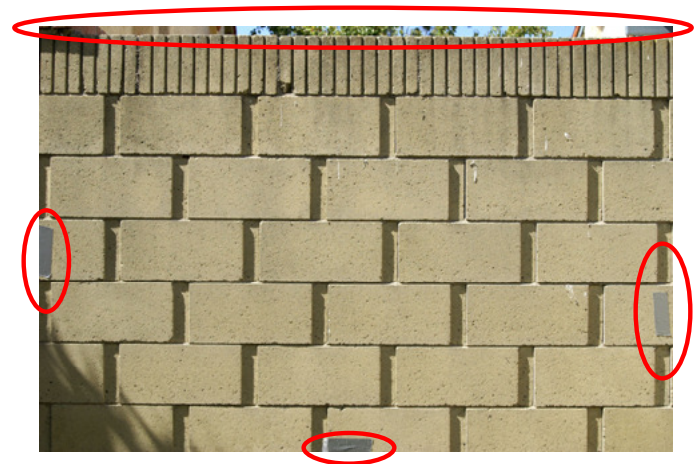




Figure 2-10: Wide Area Focus Example. The wide-area autofocus algorithms do an outstanding job for the vast majority of snapshots

subject. Although the camera will usually guess correctly (for common compositions like the kind shown in **Figure 2-10**), there are times when it will have no clue and you will have to tell it specifically which focusing sensor to use.

How do you pre-focus? You will notice that the shutter button is actually a “two-stage” button. The first “stage” is encountered when the button is half-way down. The second “stage” is tripped when the button is pressed all the way down. When the button is half-way down, it tells the camera to *focus on something and then wait for further instructions*. Once the camera is “primed” (that is, once the focus is locked), pressing the shutter release button all the way down will take the picture instantly.

How does the camera know what to focus on?

It doesn’t. The camera usually has to “guess”, which means it has to figure out which of the viewfinder’s 9 focusing sensors (as shown in **Figure 2-13**) is superimposed “on top of” the

How do you tell it which focusing sensor to use? In the case of the A100 you must find the setting in a menu. So, let's take this opportunity to thoroughly explain how to choose a focus point via one of the Function menus, and in doing so I'll explain the notation we'll use throughout the rest of this book for accessing ALL of the function menus (such as autofocus, metering modes, flash compensation, color mode, and digital effects). But for now let's start by setting the AF focus point.



Figure 2-11: To change the focus point, rotate the function dial until the word "FOCUS" aligns with the white dot, and then press the center button.

Rotate the A100's Function dial until the word FOCUS appears next to the white dot (**Figure 2-11**), and then press the button in the middle of the Function dial. The menu in **Figure 2-12** will appear.

Each FUNCTION display has two parts to it: The left margin (with the dark-grey background) shows the different features you can select; you can highlight one of them by using the UP- and DOWN-arrow buttons on the controller.

When a function is highlighted, options specific to that function appear in the larger grey area on the right, and are selectable via the RIGHT- and LEFT-arrow buttons on the controller. Once the desired option is

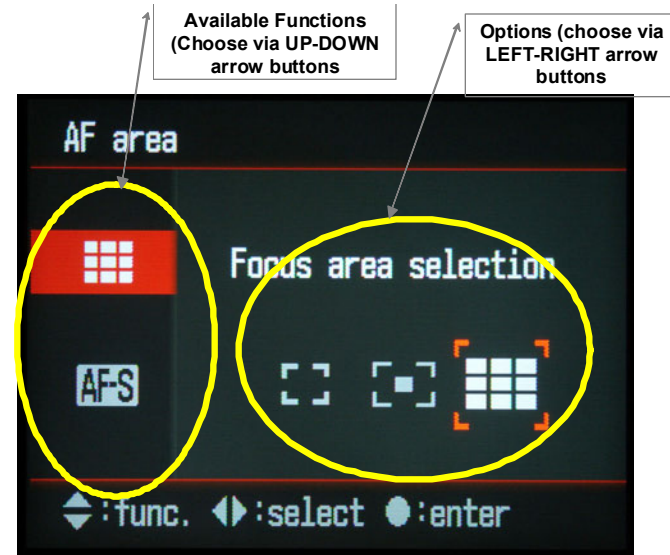


Figure 2-12: How to select the features from the FN (Function) menu.

highlighted press the center button of the controller to select it. The notation for this (as used throughout the rest of this book) is: **FN → AF Area → Focus Area Selection** (notice you can see words as well as icons in the display, making it easy to understand what's going on).

So in this case, use the UP or DOWN arrow keys until the words “AF Area” appear in the upper left-hand corner.

Once the desired feature is highlighted, the options for that feature appear in the large grey rectangle to the right. In this case there are 3 choices: “Wide AF area” (the default), “Spot AF area”, and “Focus Area Selection”. “Wide AF area” lets the camera decide which of 9 focus areas to use, and for most snapshots it does a great job. “Spot AF area” uses ONLY the center focus point. And “Focus Area Selection” lets YOU choose which focus point to use via the arrows in the Control Wheel.

I personally prefer “Spot Area” myself, only because I’ve been using the Focus → Recompose → Shoot method for 20 years.

THE BEST OF BOTH WORLDS: It’s not in the instruction manual, but here’s a handy way to get the best of “Wide AF area” (where the camera guesses which AF sensor to use) and “Spot AF area” without having to use menus to switch between the two modes:

When in “Wide AF Area” mode, you can override the camera’s choice of a focusing sensor by pressing the center button of the control dial. This way, if the camera guesses wrong and focus-locks on something else, you can just take your thumb, press the control dial’s center button (which is marked “AF”, incidentally), and then have it re-focus on whatever’s behind the center sensor. Fast!!

The Focusing Sensors

Have a look at **Figure 2-13**, which shows the red lines representing the focus points visible as you look through the viewfinder. The sensors themselves are designed to detect contrast – a strong difference in light values. In fact, you can easily fool the autofocus logic by pointing the camera to a blank, featureless wall. If there is no contrast, the camera will try to focus for about a second, and then “give up”, having not found any contrast to focus on. When the camera “gives up”, a flashing green dot will appear in the lower left corner in the viewfinder. Conversely, if focus is successful, the green dot illuminates and it will also verify focus lock via a cute little “chirp” sound effect – a great mechanism which allows you to capture your subject just a little faster.

Single-Shot AF / Continuous AF Focusing Modes

As discussed above, the factory default for focusing modes is “Focus on a subject, and then lock focus until I take the picture”. This is called “Single Shot AF” (AutoFocus) mode. The camera also has a “Continuous AF” mode setting, which can be used when you’re shooting sports (or anything that moves). When this mode is enabled you are essentially telling the camera “my subject is moving. Even when you’ve found focus, keep trying to focus on the subject because my subject will not stay still!” The Focus Mode menu is covered in detail starting on page 152, but for reference, you can invoke it via **FN → FOCUS → AF MODE → AF-C (Continuous Autofocus)** (using the previously defined shorthand notation). To return it to Single-Shot AF (the factory default), it’s **FN → FOCUS → AF MODE → AF-S (Single-Shot AF)**.

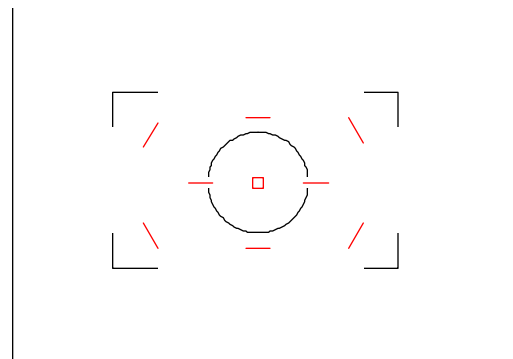


Figure 2-13: Focus Points within the Viewfinder. The red marks indicate the available focus points. The center “square” focus point actually contains TWO focusing sensors perpendicular to each other, making it twice as likely to find contrast if used.

Autofocus Priority / Release Priority

There is also a very important function which was designed to work in conjunction with Continuous Focus mode: It is called “Autofocus Priority”, and it essentially means “When I press the shutter release button down all the way, don’t take the picture unless the subject is actually in focus!” This is how the camera is set by default, and this is a pretty good setting which helps to ensure that all of your pictures of moving subjects (or even those that stay still!) come out sharp. In Autofocus Priority mode; when you press the shutter release button, the camera will autofocus first and then shoot. If for some reason the camera can’t find focus, you’ll get a flashing green dot in the viewfinder display, and the camera will *not* take a picture.

So what is “Release Priority”, and why would you need it? The answer is, as you get more experienced shooting sports using Continuous Focus mode, you will find that there will be times that the subject is indeed in focus (or is so close that it’s “good enough”) and yet the camera doesn’t realize it, causing you to miss the shot while the camera wastes precious time trying to find / confirm focus.

So if you ever find yourself shooting in Continuous AF mode and saying, “Take the picture NOW, %\$#@%#!”, then you’re ready for Release Priority mode. Release Priority mode tells the camera to take the picture WHEN YOU PRESS THE SHUTTER RELEASE BUTTON, whether it thinks the image is in focus or not. History is filled with important pictures that were either out of focus or poorly exposed, such as the infamous shot of the Tien An Men Square protests in China, or just after the Kennedy assassination. Using the combination of Continuous Autofocus and Release Priority, the camera will do its best to quickly get the



Figure 2-14: Release Priority tells the camera to take the picture when YOU want, not when the camera thinks it should.

subject into focus, while you wait for the decisive moment to occur. The camera will never disobey your direct order to SHOOT! It's a great partnership.

You can invoke Release Priority mode by pressing **MENU** → **CUSTOM (PURPLE)** → **1** → **Priority Setup** → **Release**. (This is *always* the setting on my camera.)

Batteries

Batteries are kind of important. ☺ Thanks to a new generation of Lithium-Ion battery technology (which has a higher energy density than the older NiCad rechargeable batteries), you can now do some serious shooting all day long (even with the built-in flash turned on) and the battery will last about 700 exposures according to Sony (500 exposures according to ME). Salient points:

- The camera rigidly enforces the use of the FM55 battery. Inserting an identical-looking Infolithium battery (such as the popular batteries used in Sony's camcorders) will result in a message "Incorrect battery inserted" and the camera will not function. Make sure you buy the right one!
- They charge fully within 4 hours. (Longer than charging your cell phone, but then again the FM55 battery holds a LOT more energy!)
- Carrying a spare battery (and a spare memory card) with you is considered wise.

Sony also makes an AC adapter, sold separately as ACVQ900AM. Keep in mind that using an AC Adapter will only power the camera; it WILL NOT charge the batteries that are inside. For this you must use the external battery charger which came with your camera or the two battery bays that are part of the AC adapter.

Flash

If you're an impatient user, here's all you need to know about the built-in flash: Keep it up all the time. The factory default for the flash mode is AUTO, which means the camera will fire the flash when it thinks it is necessary, and won't fire the flash when it thinks there's enough light.

It turns out that the flash system on the A100 is one of the better implementations you'll find anywhere. There is so much to say, in fact, that I talk about the flash in two other areas of the book. The seven (!) different flash modes are covered in Chapter 5, while Chapter 7 talks about the wireless flash capability.

Self-timer

You all know the classic function of a self-timer: put the camera on a tripod, get your buddies to pose (leaving a place for you to run to), pre-focus the camera, push the button, and then RUN and arrive just in time for the camera to take your picture.

To set the self-timer, press **Drive Button → Self timer (and then use the UP / DOWN buttons to select 10 seconds or 2 seconds)**. The Drive button can be seen in **Figure 2-15**.



TWO self-timer durations? That's right! The first one, with a delay of 10 seconds, is ideal for the group shot scenario discussed above. The second one (which I use a LOT) is a 2-second delay, and it is used in scenarios similar to this: it's evening time, and you want to take a low-light shot of the cityscape near sunset. You want the image quality to be the best, so you set the ISO to 100, and you want everything to be in focus, so you use a small f/stop like f/11. This results in a shutter speed of 10 seconds. So you pull out your trusty portable tripod (which is more portable than it is sturdy). Extended all the way, the tripod is actually less than rock-solid – even depressing the shutter release button will shake the tripod by a miniscule yet horrendous amount, defeating the purpose of having a tripod to begin with.



In situations like these, photographers through the ages have either used a remote release (also called a “cable release”) like the optional RM-S1AM or the Minolta RC-1000L, or they put the camera into self-timer mode to minimize camera shake. For this purpose, a 10-second self-timer is often longer than you need; and so the Sony engineers put in a 2-second self-timer mode. This way you can take several shots in (reasonably) quick succession,

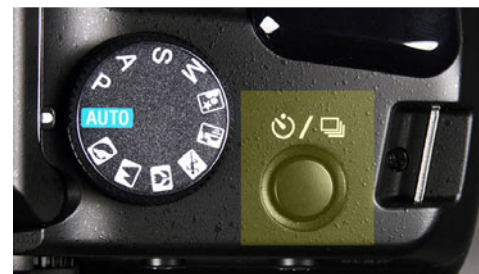


Figure 2-15: The Drive mode button (highlighted in yellow).

changing the exposure by a stop or two just to make sure you're capturing the optimum amount of light.

The 2-second setting has another important characteristic – *the mirror flips up first*, then two seconds elapse, and then the camera takes the picture. This is done to dramatically reduce camera-induced vibrations for times when you're mounted on a shaky tripod, or using a long lens, or both.

TIP about the eyepiece cover: The light sensors that are responsible for determining the proper exposure reside in the pentamirror (the top of the camera), and have no idea if the light they're seeing is coming from the focusing screen or entered as stray light through the eyepiece. Usually this isn't a problem, since in normal use your eye blocks all stray light from entering the viewfinder. But when you're using the self-timer, it's possible that your eye will NOT be covering the viewfinder at the time the shutter release is pressed (that's when the exposure is locked into place), thereby possibly affecting the recommended exposure. It is for this reason that your camera came with a plastic eyepiece cover (it's attached to the strap near one of the ends), and the instruction manual recommends that it be put into place when you're using the self-timer. To use it, you'll have to remove the rubber collar around the eyepiece first. That's just a pain, as is carrying (and finding!) the eyepiece cover to begin with.

Recommended solution: Just place your hand at the back of the camera to block stray light from entering the eyepiece at the time you press the shutter release. Voila!!

The “Reset” Feature

“Just in case.” It’s good to know that, if you happen to press the wrong button or accidentally invoke a feature that you weren’t aware of, or don’t know how to undo, all is not lost! You can reset the camera to factory defaults by doing the following: **MENU** → **SETUP** (Orange menu) → 3 → **Reset Default**. (Don’t forget to hit the right cursor button and then hit the center “Enter” button to invoke it!!)

Real Letters from Real Readers

Hi, Gary. I have a suggestion for your upcoming A100 book. It would be extremely beneficial, especially for us who just bought our 1st DSLR, to get some hints on how to test the camera. To be specific, A100 has so many features and I am not sure if they work (after my disappointing experience with [camera brand name deleted] I am very suspicious now!). Cheers, Renata Hajkova.

=====

Dear Renata, What you ask for certainly sounds reasonable. The things I would check for are the functions which are linked to mechanical / physical parts of the camera (if these all work then all of the camera's other software-controlled features should work). Some quick ideas -

1) Check autofocus and exposure - Take one shot in AUTO mode, play back and zoom in and check for sharpness and reasonably accurate exposure.

2) Check flash - take one flash shot in AUTO mode and check for reasonably accurate exposure.

3) Test for Super SteadyShot - Set the camera to manual exposure mode, shutter speed to 1 second using the front wheel, take a picture and FEEL the vibrations that result during exposure. (Do the same thing with SSS OFF and confirm the lack of vibrations. (Continued next page)

Real Letters from Real Readers (continued):

4) Test for proper electrical contact for buttons or knobs: Turn all of the knobs and make sure the LCD screen changes appropriately (with no intermittent screens showing). Test each button and all cursors for functionality. "Intermittent" screens (which might appear for a fraction of a second before they switch to something else) indicate there might be dirt on the contacts beneath the knobs.

5) Test the aperture mechanism: Put the camera into Aperture Priority exposure mode (page 110), set the aperture to the highest number you can with the front wheel, and press the depth-of-field preview button (page 114). When it's pressed in, you should see the aperture blades in the lens "stop down" all the way, leaving only a very small hole in the center.

6) Stuck Pixels - Shoot a white sheet of paper and a dark sheet of paper (will probably have to overexpose and underexpose (page 127) for each in order for them to come out as white and black). Playback, zoom in, and scan (cursor left, right, up, down) for any pixels that shouldn't be there. If you see something, do the test again to make sure it wasn't dust.

7) Test High Speed Sync - Using an accessory flash (if one is available), put the camera into Shutter Priority mode (page 100), set the shutter speed to 1/250th of a second, and take a flash picture. Look for horizontal banding or other signs of uneven illumination.

These items test the facets of the camera that are most prone to failure in the manufacturing and transporting phases of a camera's life. If all of these things work you should be safe. I didn't suggest testing the self-timer and USB connections because they are too difficult to test in a store (and it will take too much time for me to explain it in this email!).

Hope this helps! Sincerely, Gary Friedman

Summary of Chapter 2

This Chapter covered just enough material to make you dangerous. The basic controls were covered that will allow you to use the camera as a very capable point-and-shoot. More of the detailed nuances of the camera's capabilities (like how you can print your images after you take them) will be covered in subsequent chapters.



Chapter 3

After You Have Taken Your Pictures

All paths are easier with digital – including using 1-hour photo labs!

This chapter discusses the different ways you can use and view your images once they have been taken, including having them printed at a 1-hour photo lab, and archiving them for future generations. Specific sections include:

- Viewing pictures while they're still in the camera
- Having pictures printed at your local 1-hour photo lab
- Uploading the images to your computer

So, now you've taken a once-in-a-lifetime shot, and it's sitting there in the camera. Now what? This chapter will talk about the three things you can do once the images are inside your camera:

1. View the pictures on the LCD screen or on an external TV.
2. Take them to a 1-hour photo lab and have prints made *only of the images you want*.
3. Copy them to your computer where they can be manipulated, printed, and/or archived onto CD or DVD.

Tips when Traveling

Use a Diaper bag – That's right, leave that expensive-looking camera bag at home and carry your highly-prized gear in a diaper bag so you won't be such an obvious target for thieves. Even if you leave the diaper bag in your car in full view, nobody will want to break in and steal THAT!!

Carry on all that cannot be easily replaced – When faced with the pack vs. carry-on decision, the rule should be carry with you what cannot easily be replaced when you land. This is as true for chargers and power cords as it is for the camera itself!

Don't worry about X-ray – Modern computers, memory storage, hard drives, and digital cameras are not susceptible to airport X-ray machines as old-fashioned film was. Go ahead and have your bags screened!

Viewing your Pictures while they're still in the camera

Let's start off with the easy stuff. (Oh, wait, it's all easy...never mind! ☺) To view pictures you took while they're still in the camera, press the Playback button in the lower-left-hand corner of the LCD screen (**Figure 3-1**), and then use the left and right buttons on the controller (which I'll often refer to as "the cursor control buttons") to view "previous" and "next" images in order, starting from the most recently taken shot. Press the shutter release button halfway to return to "Record" (taking pictures) mode.



Figure 3-1: The Playback Button

TIP 1: If you took a vertical shot and the resulting picture appears sideways when viewing it in playback mode, you can rotate it 90 degrees by pressing the "down" cursor button. Pressing the "down" button multiple times will continue to rotate the image another 90 degrees; pressing it 3 more times will bring it back to its original orientation.

TIP 1.5: You shouldn't need the above tip since the camera employs an orientation sensor, and stores the information (vertical or horizontal) inside the image file. The camera automatically rotates the image for you when playing it back. Use Tip #1 to rotate a vertical image so it will appear slightly larger in the display.

TIP 2: If, while doing the above, you accidentally hit the "up" cursor, you'll get a display that shows the picture and something called a "Histogram" which shows you where all the light values in the picture fall. Don't worry if this happens accidentally; you can get rid of it by hitting the "up" cursor again. The Histogram function is very useful and is discussed in detail in Chapter 5.

Magnifying the image

In addition to being able to rotate your images while in Playback mode, you can also magnify them (zoom in for a closer look) or just Delete them.

When you're in playback mode, press the Magnify button (**Figure 3-2**). The image instantly zooms in, and in the upper-right-hand corner you will see a white square with a red square within it. The red square represents the small part of the whole picture you're currently viewing. Try the cursor buttons on the controller to scroll left or right, up or down. The small red square in the upper-right-hand corner moves within the larger white square, indicating which part of the big image you're looking at now.

TIP: While you're zoomed in, you can use the front control wheel to go to the previous or next image. This comes in very handy when you've shot several similar pictures and need to evaluate the same small area of each of them for critical sharpness.



Figure 3-2: The Magnification button, and the resulting display.

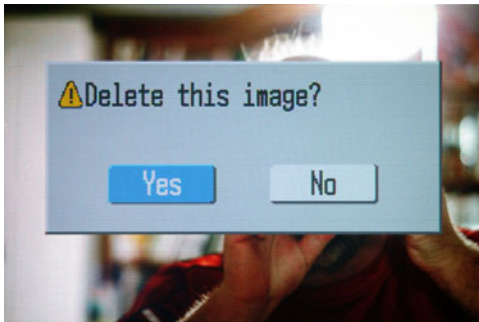


Figure 3-3: The Delete Image button and the resulting display.

Pressing the center button of the controller while in Magnify mode toggles between zoomed view and full-image-view. While in full-image view, the rectangle is still there – it's showing you the part of the image you'll see when you press the center button again and return to zoom mode.

To zoom back out again, press the “zoom out” button multiple times (next to the “zoom in” button, with the +/- notation), or press the playback button to get back to seeing the full image.

Deleting an image (or multiple images)

You can also delete the image you're looking at while in Playback mode. And the camera's software designers have given you two different ways of doing it:

- 1) While in Playback mode, when you see an image you don't like, hit the Trash Can button to the left of the LCD display (**Figure 3-3**). A message will pop up asking you: “Delete this image?” and there will be two option boxes: “Yes” and “No”. Use the left and right cursor buttons so that the “Yes” looks blue with white letters, and then hit the center button of the controller. Your image will evaporate, leaving you looking at the next picture.

2) While in **PLAY** mode, hit **MENU → 1 → Delete → Marked Images**. The display will then go into “index mode” – that is, it will show you either 4, 9, or 16 tiny images on the screen (**Figure 3-4**). You can traverse through the images by using the cursor buttons, and you can then mark an image for deletion by pressing the up cursor button. (Pressing the down button will unmark it.) When marked for deletion a tiny trash can will appear to the left of the image. Continue to scroll through and select other images for deletion. When you’ve finished marking your images, hit the center button of the controller, and then confirm the deletion by using the left and right cursors to make the **YES** button appear blue with white letters. All of your selected images will evaporate.

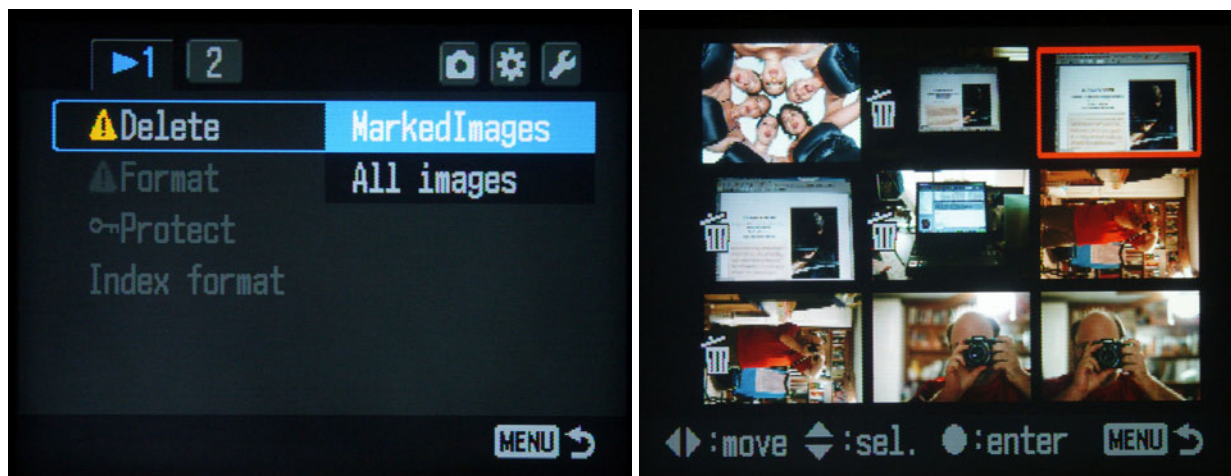


Figure 3-4: The Delete Marked Images screen, which allows you to delete multiple images at once.

TIP: The display doesn't have the brightness range that the image sensor has (although it is significantly improved over its predecessors!). So pictures that look "too white" or overexposed on the rear LCD might actually be perfectly well exposed. For example, have a look at the images in Figure 3-5. When seen on the camera's LCD display, the white areas of the image look washed out, and the whole image in general appears a tad overexposed. However, once you bring it home and view it on your computer screen (or make a print), the picture turns out to be perfectly exposed!

The moral of the story is, "Think Twice About Deleting Any Pictures In-Camera Just Because You Think the Exposure Might Be Off." (Better to consult the histogram display, explained on page 190.)



Figure 3-5: The camera (right) can capture much more detail and brightness range than the display (left) will show you. Don't delete images in-camera just because they don't appear to be exposed correctly!

Another TIP: To change the number of images you can see on the screen at once (when deleting multiple images, for example), while in playback mode press **MENU** → **1** → **INDEX FORMAT** → [Choose either 4, 9, or 16 frames]. (There is also a “File Browser” option for this menu item; if your memory card has multiple directories on it this mode will enable you to navigate through multiple directories and see the contents of each. A nice feature!)

Yet Another TIP: User interface design is hard. Making things intuitive is dramatically harder, and so I absolutely refuse to chide the programmers on this one, especially since they got everything else right. BUT, the “Yes”/“No” confirmation screens that pop up really are unintuitive the first time you use them. Which one is being highlighted? Usually it’s the lighter colored one. No, usually it’s the one that has a cool sculpted look. Oh, wait, they’re both true! The answer is **THE BUTTON THAT IS DARK COLOR WITH WHITE LETTERS IS THE OPTION THAT IS SELECTED**. Now you know.

Protecting an image

An image can be “protected” as an extra measure against accidental deletion. The way you mark pictures for protection is remarkably similar to the way you mark pictures for deletion:

- 1) In **PLAY** mode, go to **MENU** → **1** → **Protect** → and choose from “MarkedImages”, “All Images”, or “Cancel All” which means “Unlock all images on the card”.

- 2) If you choose “**MarkedImages**”, the camera will show you all the images in index format, and you then go through and mark images for locking the same way you mark images for deletion (as described in the previous section).

Images are only protected while in the camera; once they have been copied to your computer they have no special protection against accidental deletion.

How the Image Information is Displayed – the Display Button

The previous section discussed how to scroll through the images in playback mode. This section describes how the images appear when you look at them.

The second button from the top on the left of the large display is the Display button, which controls how the playback images appear on the screen. Pressing the Display button multiple times while in playback mode will cycle through three display modes as shown in **Figure 3-6**:

1. Picture Only
 2. Picture plus overlaid text showing the date, time, image number, total number of images, image size, and quality setting.
 3. Index mode, where you can see either 4 or 9 or 16 images on one screen. (See previous tip on how to switch between viewing multiple images at a time.)
-

If you're in Index mode, the left and right cursor will still take you forward or backward one frame at a time, while the up and down keys will advance the display by one row. If you land on a picture in the index and want a closer look, press the Display button again and the selected image will fill the screen.

TIP: The Display button has a different function if you're not in playback mode. It will either change the format of the data display screen (showing you at a glance all the camera's various settings), or it will turn the display OFF, saving battery power.



Figure 3-6: The DISPLAY button toggles between 3 different playback screens and 2 different data screens when you're shooting.

Other Ways to View Pictures

Television screen viewing

Here's something you can't do with a film camera. ☺ Take a batch of pictures, hook up your camera to a TV via the supplied video cable, and watch a slide show. I've found that the "view on a TV" feature comes in especially handy when I'm taking studio portraits of couples or families. It allows a large group to review the shots taken in small batches. Once the subjects get the "instant feedback" through the magic of digital, the next batch of pictures in the studio almost always result in more relaxed, spirited portraits. (See **Figure 3-7**.)

The term "Slide Show" refers to the old days of using slide projectors, where a series of images were shown for a few seconds at a time and then automatically advanced to the next image. To have the camera give you a "slide show" (either through the LCD display or while hooked up to the TV):

1. Connect the camera to an external monitor via the supplied video cable (See **Figure 3-8**.)
2. While in **PLAY** mode, hit **MENU → 2 → SLIDE SHOW → [center button]** and you will start a slide show, which will change every five seconds.

To stop a slide show, hit the Down cursor key and you will find yourself back at the Slide Show menu. Oh, and you can also hit the Left and Right buttons to advance to the next picture sooner than



Figure 3-7: Letting subjects see the first batch of images on a TV can loosen them up for the next batch.

5 seconds. Finally, pressing the controller's center button will alternately pause and resume the slide show.



Figure 3-8: Hooking up the camera to a TV via the supplied video cable. (The cable connector is inside the memory card door.)

Having Your Pictures Printed at a 1-Hour Photo Lab

One of the huge advantages of digital cameras is that you can take a gazillion pictures, delete all of the bad ones, and then take the good ones to your friendly neighborhood 1-hour photo place and have them made into conventional prints that are indistinguishable from the prints made with traditional film cameras. This “only-print-the-good-ones” feature is such a money saver that if you you’re the type who likes to experiment a lot, the money you save can easily cover the cost of the camera within a few months!

There are many, many different ways to get your images printed. Below are the four most popular variations.

Variation 1

Okay, it doesn’t get any simpler than this. After you’ve taken your pictures:

1. Remove the memory card from the camera.
2. Take it to a 1-hour photo lab and say “Here! Make prints of these!!”

(Most modern 1-hour photo labs can now accept digital media as well as film.)

TIP: CD or not CD? While you're getting your digital images printed at a 1-hour lab, you can also request that the images be burned to a CD for an additional fee. If you don't own a computer, this is an extremely worthwhile thing to do, for the CD will act as a negative – a means of storing your images “forever” on a shelf. If you have access to your digital files in the future, then you can make high-quality reprints and enlargements of your pictures in the future.

But beware -- when it comes to making CD-ROMs of your images, not all 1-hour photo labs are the same! The vast majority of them will give you images that are a fraction of the resolution of the images you originally handed them (usually enough to print a 3x5” print at 300 dpi); while a select few will burn the image files to a CD as they originally appeared on your memory card. Make sure your lab offers to capture the **FULL RESOLUTION** – this essentially preserves all the detail and tonality that your camera went to a lot of trouble to capture!

Variation 2

If you want, you can add an extra step to save you some money:

1. In playback mode, go over the pictures you took and delete any images you don't want.
2. Remove the memory card from the camera.
3. Take it to a 1-hour photo lab and say “Here! Make prints of these!!”



Variation 3

Let's say you took 100 images and want to keep all of them, but only want to print 5. You can use the camera's "DPOF" (Digital Print Order Format) feature to specify which ones you want printed.

1. In **PLAYBACK** mode, hit **MENU → 2 → DPOF set → MarkedImages**. Select the pictures you wish to print using the same method as deleting multiple images (covered earlier in this chapter on page 81). When selecting an image for printing, hitting the "Up" cursor button multiple times will increase the quantity of prints ordered. Hit the controller's center button to finish. The camera will create a special file on the memory card called a DPOF file, which tells most modern 1-hour photo equipment which pictures you want and how many of each you desire.
2. Take your memory card to a 1-hour photo lab and say "Here! Print only the ones I've marked for printing!"

Variation 4

Same as Variation 3, except you want to print them on your DPOF-compliant inkjet printer instead of going to a 1-hour photo lab. (We're talking about inkjet printers that can accept memory cards plugged directly into them. Such printers usually have color screens built-in so you can preview your picture before printing it.)

- Mark your pictures for printing as in Variation 3 above.
- Insert your memory card into your DPOF-compliant inkjet printer, and tell the printer "Here! Print these images that I've marked!" (Well, tell it via the appropriate button presses. Chances are your printer doesn't have voice recognition. ☺)

Many modern inkjet printers from companies such as Epson, Hewlett Packard, Canon, and Brother have compact flash reader slots built right in, so you don't even need to use a computer to get your prints!

Generating an index print

If you're using an inkjet printer that can accept memory cards (as described above), you can also use the above procedure to tell the printer "Generate an index print!" An index print is a large sheet of paper that has 20-30 tiny images on it called "thumbnails". It is generally used to build catalogs, and to allow you to look closer at an image and decide which ones to print or enlarge.

You can tell the A100 to generate an index print by going into **PLAYBACK** mode and selecting **MENU → 2 → Index print → On**. This generates a DPOF file which your printer will recognize once you insert it and tell it to print whatever was marked.

Canceling DPOF files

Once your pictures have been printed, and even if they have been erased, there may still be a DPOF file remaining on the memory card. To erase it, make sure you're in **PLAY** mode and **MENU → 2 → Cancel print** and then hit "YES" when prompted.

TIP: There is an intentional yet misleading display in the **PLAY → MENU → 2 screen. When **Index Print** is selected, the screen still shows a "-" where it ought to show "On". Rest assured the index print will still be generated once you insert the CF card into the printer.**

Downloading Pictures to your Computer

Not everyone needs to use a computer with a digital camera. Some are perfectly happy to take their memory card to the 1-hour photo lab and have them printed, burn a CD for future use, and then erase the card so it can be used to take more photos.

If you are comfortable with computers, however, you may wish to download the images to your computer so you can make enlargements with your inkjet, manipulate them in Photoshop (or the Picture Motion Browser software which came with your camera – see Chapter 9 for more details on its use), make a web page, or even archive them to CD or DVD yourself.

There are two ways to get your images out of your camera and onto your computer:

1. Remove the memory card and insert it into a computer equipped with a compact flash (CF) or Memory Stick reader as appropriate (as shown in **Figure 3-9a**)



Figure 3-9: You can plug the memory card into a computer with suitable hardware to read it, or you can hook up your camera directly to the computer (via the supplied cable) and have it appear to the computer as an external disk drive.

2. Hook up the camera to your computer via the USB (Universal Serial Bus) cable that was supplied with the camera. (This is different from the Video cable described in the previous section, which was also included in your camera. See **Figure 3-9b.**) Some computers require the pre-installation of the Sony software which came with your camera before it will recognize the camera as an external disk drive. (Also make sure that **MENU → TOOLS (ORANGE MENU) → 1 → Transfer mode → Mass Storage** is set.)

Once either of these methods is invoked, the memory card will appear to your computer as a removable hard drive, and you can copy the pictures over by clicking and dragging them to the desired directory.

The nuts-and-bolts of transferring your images to your computer's hard disk are difficult to describe in adequate detail, since each computer operating system will require different actions. For example, if you are using Microsoft Windows XP, as soon as the computer detects a camera being plugged in, it will pop up a window saying "What would you like to do?" and then present several options. Older versions of Windows, on the other hand, require that you know how to locate files and drag-and-drop them to your intended destination. The same thing is true of the process of burning CDs or DVDs from your digital files – every computer (and usually every software package that comes with the CD or DVD drive) is different, precluding even a high-level description of how to proceed in order to archive your images. So for very practical purposes, this book will assume that, if you have a computer with a CD-ROM or DVD burner, you are already familiar with how to copy files and how to burn them to removable media.

TIP: Don't forget to delete the images from the memory card after they've been copied to your computer so you can have room to take new pictures when it is returned to the camera!

INTERESTING ASIDE #1: Despite the computer industry hype, data stored on CD-R, CD-RW, DVD+/-R, and DVD+/-RW media (say that fast ten times!) may not last much longer than 20 years, and may last as little as 5 years. If your goal is to have your precious memories around a few generations from now, it can easily be done by diligently making new copies of your digital media every 5 years or so. Image quality does not degenerate when you make copies of copies of copies of copies of CDs or DVDs, and doing so 5 or 10 years apart is a simple, low-cost method of preserving your images much longer than what CDs, DVDs, or even traditional film can provide.

INTERESTING ASIDE #2: For Data Longevity, DVD+R is the standard which is generally accepted to have the stronger redundancy and error correction codes built into the data storage format, resulting in data that should last longer than the DVD-R format.

INTERESTING YET IMPORTANT ASIDE #3: Don't Label your disks using a Sharpie or any other permanent marker which contains solvents! Also, don't use adhesive labels. Either of these can lead to unrecoverable data loss in less than 5 years on some brands of CD and DVD media. The U.S. National Institute of Standards and Technology published a comprehensive guide to archival storage issues, which can be downloaded here:

<http://www.itl.nist.gov/div895/carefordisc/CDandDVDCareandHandlingGuide.pdf>.

What to do? Delkin (www.Delkin.com) markets media that have proven to be most reliable in accelerated ageing tests (and they sell a solvent-free marking pen too!) Highly recommended.

Epilogue

Okay, then...if you were to stop reading and put the book down *right now*, you would now know enough to go out and take some great pictures. But, just the act of acquiring and reading this book means you're *not* content to have it act only as a point-and-shoot. Good! The rest of the book will cover what all the other switches, buttons, and modes do, and how you can use them to enhance your creative expression.



Summary of Chapter 3

In this chapter we reviewed the options and procedures of what to do after you've taken your pictures. There were three main choices:

- Viewing pictures while they're still in the camera.
- Magnifying them to get a close look using the magnification button.
- Deleting them, individually or en masse, by using the MENU → DELETE function while in PLAY mode.
- Protecting an image to prevent accidental deletion by using the MENU → PROTECT function while in PLAY mode.
- How to make all that extraneous information appear and disappear from the viewfinder by using the DISPLAY button.
- Viewing your pictures on a television screen and as a "slide show".
- Printing your pictures at a one-hour lab.
 - Several variations of how to have your lab print just the pictures you want directly from your memory card.
 - How to generate an index print.
- Downloading your pictures to a computer for further refinement, printing, and/or archiving.

Chapter 4

Some Basics of Photography

Know the difference between a lens opening and a Broadway opening!

In this chapter I will introduce the basics of photography, and will explain (with examples!) such important concepts as f/stops, shutter speeds, how sensitive the camera is to light ("ISO"), depth of field, the camera's different exposure modes, and all of the A100's Digital Subject Programs (Sunset Mode, Sports Program Mode, Macro Mode, Portrait Mode, and Night Portrait Mode).

In addition, this chapter will explain the exciting world of nighttime photography, often called Time Exposure photography.

Here we go...

Just about every photography book ever written will talk about what's in this chapter, because these are important concepts. Coupled with the concepts discussed in Chapter 6 (dealing with light and composition), you will be armed with the secrets of the pros, and your photography will have the potential to improve dramatically.

There are FOUR major variables that affect the characteristics of the exposure when you take a picture. Each of these variables will have a visible impact on your image, but in different ways. I'll outline the four variables here, and then I'll discuss each of them in greater detail (including examples) later on.

1) Shutter Speed: how long the sensor sees light. The shutter speed can make a moving subject appear frozen and sharp, or can make it appear to be moving and blurry. The A100 can let in as little as 1/4000th of a second of light (freezing a moving subject, as in **Figure 4-1**), or as much as 30 seconds (or longer!) in manual mode, which is guaranteed to



Figure 4-1: A Fast Shutter Speed can stop action in its tracks.

blur anything unless the camera is mounted on a tripod and your subject is just as steady.

2) f/stop: photo jargon meaning “the lens opening”. The f/stop controls how much light enters through the lens, and in doing so also determines how much of the picture is in focus. The f/stop blades are embedded within each lens, and so each lens has its own range of lens openings. The Sony AF DT 18-70 lens that is often bundled with the A100, for example, can go from f/3.5 (all the way open) to f/32 (closed down almost all the way, rendering nearly EVERYTHING in focus, as in **Figure 4-2**.)

3) ISO: how sensitive the sensor is to light. The higher the number, the more sensitive it is. (This corresponds almost exactly to the ISO ratings of film.) The tradeoff is the higher the ISO, the more random “noise” appears in the picture. The A100 has ISO settings of 100, 200, 400, 800, and 1600.

These first three variables are all tradeoffs; if you increase one you must decrease one of the others to get the right exposure. The fourth variable doesn’t employ such tradeoffs:

4) Focal Length: how much the lens is zoomed in or out.



Figure 4-2: A small f/stop (like f/16) can make everything appear to be in focus.

Let's talk about each of these variables in greater detail.

Shutter Speeds

Shutter Speeds can either freeze action or make it appear blurry. For example, a shutter speed of $1/1,000^{\text{th}}$ of a second (not very long!) can make the boy and the water he's walking through appear to "freeze" in motion, as shown in **Figure 4-3a**. On the other hand, a very slow shutter speed (for example, 1 second or even longer) will make anything that moves appear blurry (**Figure 4-3b**).

There are many ways to change the shutter speed. One of the easiest is to rotate the mode dial until it points to "S" (Shutter Priority mode, see **Figure 4-4**), and then rotate the front control dial to choose the shutter speed you want. In this mode the camera will automatically choose an f/stop that is right for the scene you're shooting.



Figure 4-3: A fast shutter speed freezes action. Conversely, a slow shutter speed can make things blurry.



Figure 4-4: Shutter Priority Mode

By now you're probably thinking, "I don't want *any* blurry pictures. Why can't I just use $1/4000^{\text{th}}$ of a second shutter speed all the time to guarantee that everything will be 'frozen in time'?" The answer is, "If there is not enough available light and the shutter is open for a very short time, very little of that light gets through to the sensor and your picture will come out dark." In situations where there isn't enough light, the camera will recommend a lower shutter speed (like maybe $1/200^{\text{th}}$ of a second or $1/60^{\text{th}}$ of a second), or make the lens opening a little larger (letting in more light), or both. If the light is REALLY low (for example, if the camera suggests you leave the shutter open for $1/15^{\text{th}}$ of a second or so), you may want to use the flash or get out your tripod.

In addition to the high shutter speed of $1/4000^{\text{th}}$ of a second, the A100 in manual mode will also go all the way down to 30 seconds. On top of that, there is also a super-slow shutter speed called "Bulb" which essentially means "keep the shutter open for as long as you hold your finger down on the button." "Bulb" is discussed more on page 132.

So what can you do to prevent image blur in low light? Well, you could use flash, but you're forgetting that this is a Sony digital SLR camera, and it offers more options than "pictures that look like you used a point and shoot"! Here are some other suggestions that will yield results that will look much more interesting.

The picture in **Figure 4-5** was taken at 8:30 in the evening at a campfire on the beach. The sky was a deep blue and the couple was illuminated solely by the fire, and I wanted to preserve these strong colors in the picture. (This meant No Flash.) The light level was so low that the camera recommended a shutter speed of $1/8^{\text{th}}$ of a second with the f/stop open all the way (letting in as much light as possible).

Since $1/8^{\text{th}}$ of a second will usually cause blurry pictures due to the normal shakiness of the hand and/or by moving subjects, I did several things to improve the chances of this image coming out great:

1. I increased the sensitivity of the light sensor to ISO 800. (This caused the final picture to be “noisier” than if I had kept it at 200 or even 400, but hey! Better a noisy and sharp picture than a blurry one with low noise.)
2. I made sure Super SteadyShot was ON.



Figure 4-5: Getting sharp images in low light

3. I zoomed out all the way – blurriness due to hand shake is minimized when you zoom out, and gets magnified when you zoom in.
4. I asked the couple to “act like a mime” and hold perfectly still.

These four things together dramatically increased my chances of getting a sharp picture. Even after increasing the odds, it still took 3 or 4 tries before I got a shot that was sharp enough to show others.

TIP: Sometimes you will WANT a blur, like the image in Figure 4-6! For this picture I was swinging in a hammock and I intentionally set the shutter speed to something slow: 1/8th of a second. Since the camera body was attached to me, I appeared to be not moving while my surroundings appeared to move around me. In situations like these, it's probably best to turn Super SteadyShot OFF. It is also wise to turn Super SteadyShot OFF when the camera is on a tripod.



Figure 4-6: Intentional blurs can make for some interesting photos!

Shutter Priority Mode

Normally, when in “P” or **AUTO** mode, the camera chooses a shutter speed and an f/stop for you based on the available light, ISO, and focal length of the lens. It makes these decisions based on the assumption that you are taking an “average” snapshot of things that are holding still and posing for you. But if you’re shooting sports and want to use FAST shutter speeds, or are in any other situation where you want to tell the camera which shutter speed you want to use, you can put the camera into Shutter Priority mode (turn the mode wheel to “S”, as previously shown in **Figure 4-4**) and you can then set the desired shutter speed by turning the front control dial (the one near the shutter release button).

In Shutter Priority mode, you tell the camera what shutter speed to use, and the camera chooses the f/stop for you based on available light and ISO setting. What could be simpler?

Sports Program Mode

Okay, *this* could be simpler. Whereas in Shutter Priority mode (above) *you must choose the desired shutter speed* and the camera will choose the right f/stop; in Sports Program mode (**Figure 4-7**) *the camera will choose both the shutter speed AND f/stop for you, with an emphasis on the fastest possible shutter speed for the available light*. It will also set the camera into continuous shooting mode, so holding down the shutter release button will shoot multiple pictures until the button is released. (Continuous shooting is a wonderful tool to help ensure that you get the shot in a fast-changing environment!)



Figure 4-7: Sports Program mode. Think of it as a Shutter Priority mode for people who don't want to think too much. ☺

TIP: Anticipating the Action: Being able to anticipate action is a trick that all sports photographers learn. In such situations you cannot always see what is happening just outside the viewfinder's frame, which means you may not be prepared for an upcoming moment. By the time something interesting does happen, you probably won't have enough time to react and capture it.

The pros have learned to shoot with both eyes open. One eye looks in the viewfinder, and the other eye pays attention to what's going on peripherally to the viewfinder. If there's an interesting shot happening outside the frame, the other eye will catch it. When someone is running toward the viewfinder, the other eye will see it and your mind can anticipate and be ready for the shot.

Can the mind process two images simultaneously? Of course, and it doesn't take very long to get used to it. Being able to anticipate action is the single greatest edge you can have to be prepared to capture the "decisive moment" with your camera (Figure 4-8).

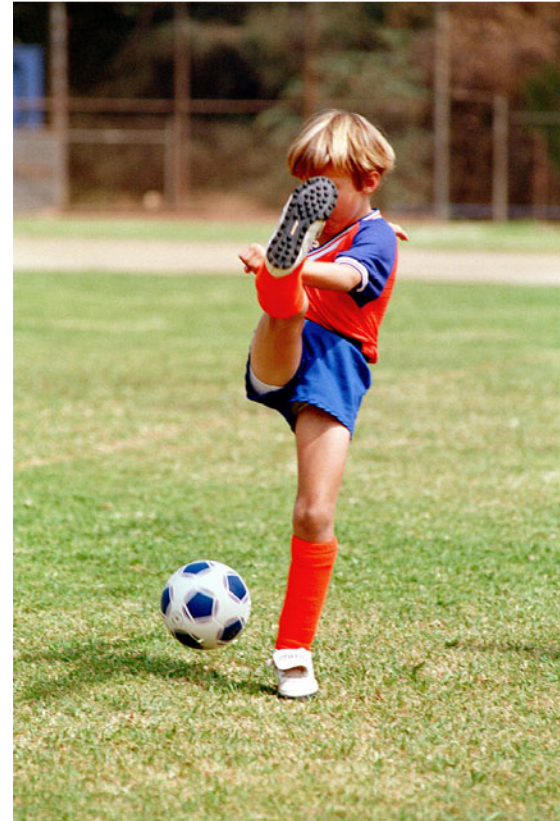


Figure 4-8: Anticipating the action helps you get the decisive shot.

TIP: If you're using Sports Program mode and the shutter speed is *still* too slow due to poor available light, you can try setting the ISO to a higher value, which will make the camera more sensitive to light, which therefore will allow the camera to shoot at a *faster* shutter speed. Better yet, shoot in Auto ISO mode so you won't have to think about it.

f/stops

The f/stop (also called the Lens Opening, also called the *aperture* – they all mean the same thing) can let a little or a lot of light into the camera. It also controls how much of the picture is in focus. See **Figure 4-9** and **Figure 4-10** for examples.

If the f/stop is all the way open (for example, if the f/stop is set to f/2.8), only the subject you focused on will be in focus; things closer than your subject and farther away from your subject will be out-of-focus. In contrast, if the lens opening is closed down as much as possible (for example, if the f/stop is set to f/32), more of the image will be in focus: things that are closer than your subject and things that are farther away from your subject will be in sharper focus than if it was set to f/2.8. An out-of-focus background can really draw attention to your subject and eliminate an otherwise distracting background.

I know this function might seem counter-intuitive. Why would a lens opening control how much appears in focus? To understand the answer, think back to the days of pinhole cameras – a light-tight box which had no lens, with a sheet of film on one side and a tiny hole (made by a pin – hence the name ‘pinhole’) on the other. Pinhole cameras had no lens, yet everything they photographed was in focus. The lens opening in your camera works the same way -- as the aperture gets smaller and smaller, it

starts to approximate a pinhole camera. The f/stop doesn't get as small as a pinhole, but you do start to see the effects of increased front-to-back sharpness as you start to make the lens opening smaller.

The range of distance from the camera that is sharp, by the way, is known in photography as “depth of field”.



Figure 4-9: What does the f/stop (the lens opening) do?

The f/stop controls the focus of things that are in front of and behind your subject. When your subjects are different distances from the camera, using a large f/stop (like f/2.8, left) creates a fuzzy background. The image on the right was shot at f/32, putting all 3 girls into focus. (For maximum sharpness, I focused on the girl in the middle.)



Figure 4-10: Another example

Notice how the background slowly comes into sharper and sharper focus the more the lens is “stopped down” (closed down). Notice also that, in order to compensate for the decrease in light coming in, the shutter speed slows down, thus letting in more light to keep the exposures looking consistent. Good thing I used a tripod for the small f/stop images!

Aperture Priority Mode

As discussed earlier, when in “P” or in **AUTO** mode, the camera does all the thinking for you – it chooses a shutter speed and an f/stop based on the available light, ISO (see next section), and focal length of the lens. But let’s say you’re taking a picture and you **KNOW** you want both the foreground and background in focus. In fact, let’s go one step further and say that you even know what f/stop is required to get everything you want into focus. When you put the camera into Aperture Priority mode (“A” on the mode dial, see **Figure 4-11**), *you* tell the camera what f/stop to use by rotating the front control dial near the shutter release, and the camera will set the shutter speed for you based on available light and ISO setting.

Figure 4-12 shows examples of how different f/stops can be used for different effects.



Figure 4-11: Aperture Priority mode.



Figure 4-12: Depth of Field is your friend.

Sometimes you want EVERYTHING to be in focus. A small f /stop (like $f/11$) is the answer. (Left)

Sometimes you want a fuzzy background to draw attention to your subject (like this photo of actor Joe Mantegna). A large f /stop (like $f/2.8$) is the answer (Right)

What you see is NOT always what you get

One of the most commonly asked questions for beginners with digital cameras is, “Why do I need to understand f/stops and depth-of-field? When I’m looking through the viewfinder, won’t I be able to *see* what’s in focus and what’s not before I take the picture?”

The answer is NO. Here’s why: when you look through the viewfinder, you are looking through a lens that is wide open. The aperture doesn’t close down to the recommended setting until the instant you take the picture. It works that way for technical reasons – it is much easier for the camera to autofocus when the lens is open all the way, plus the image appears brighter to you, the photographer. But it also means that you are looking at the scene with the shallowest possible depth-of-field.

Most people will never know the difference. But you, having read this book, are now one of the enlightened few and are now ready to understand the utility of the next feature that will help you pre-visualize all that will be in focus in the final image: the Depth-of-Field preview button.



Figure 4-13: Depth of Field preview

It looks this way in the viewfinder (left). It looks this way when you snap the picture (right).

Depth of Field Preview

Okay, back to the question of, “How on earth would you know what f/stop would be appropriate for a given scene?” The only way to really understand f/stops and depth-of-field is to experiment. Fortunately, you have a digital camera, which makes such experimentation easy and cheap. All you have to do is put the camera into Aperture Priority mode (“A”, as previously shown in **Figure 4-11**) and take the same picture multiple times, changing the f/stop each time, and then examine the results carefully on a computer screen.

But there is another tool at your disposal, one that was borrowed from the old film cameras to give the photographer an idea of what would be in focus *before* he or she took the picture. It is called Depth-of-Field Preview, and it is the little button by the base of the lens mount (**Figure 4-14**).

With Depth-of-Field Preview, you can force the f/stop to close to the recommended setting BEFORE you take the picture, allowing you to see what will and won’t be in focus on the final image. You can even change the f/stop interactively to find the perfect f/stop for the composition you envision.

To activate Depth-of-field preview, push the little button with the index finger of your other hand while looking



Figure 4-14: Depth of Field preview button (highlighted in yellow).

through the viewfinder. The camera will then close down the lens to the currently chosen f/stop. Although the viewfinder will appear considerably darker, if you look carefully you'll be able to see what will be in focus (and, just as importantly, what will be out of focus) when you take the picture. To see a dramatically noticeable difference of what's in focus, put the camera into "A" (Aperture Priority) or "M" (Manual) mode and set the f/stop to the lens' smallest aperture (like f/16 or f/22).

The Depth of Field Preview button is a momentary button; it will work for as long as you hold the button down. While you're holding it down you can actually change the f/stop (using the front control wheel if you're in A mode) and see the resulting changes in real time.

Manual Exposure Mode

A seasoned photographer will tell you that there's no substitute for Manual exposure mode. Even with all the modern automation our cameras give us, the camera's computer cannot always know the vision we have of our images, or the emotion we are trying to create. This is why Manual Exposure mode remains in all high-end cameras. The pictures in **Figure 4-15** were taken with Manual Exposure mode. Had I relied on one of the Auto Exposure modes (P, A, S, or AUTO), the images would have come out washed out and overexposed.

In Manual Exposure mode, YOU set the f/stop and shutter speed, regardless of what the camera's exposure meter thinks. In other words, you're on your own!! To guide you, the camera's exposure meter will still offer its opinion via the status display at the bottom of the viewfinder (see **Figure 4-16**).

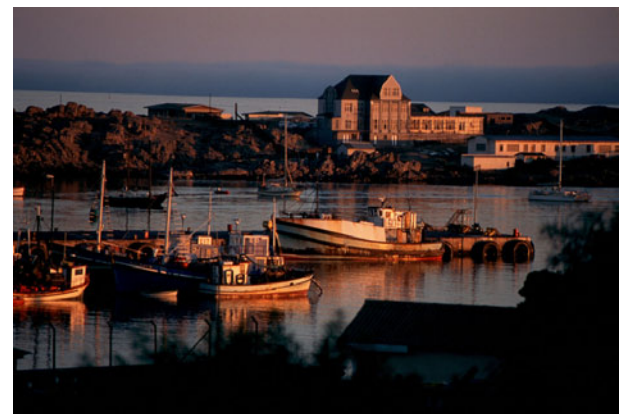
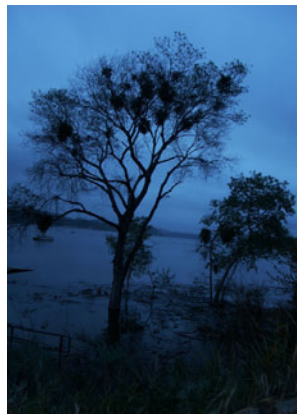


Figure 4-15: Use Manual Exposure Mode for tricky lighting. All cameras assume that the scene you're shooting is a nice, evenly-lit scene, and tricky lighting will almost always throw it off. Manual Exposure mode is for images like these that have non-uniform light (left) or are meant to be lighter or darker than "average" (center and right).

In this example, the camera's meter is telling you “Hey, I don't know about this, pal... If this were an average scene, your current f/stop and shutter speed combination will underexpose the image by about one stop!”, to which you can reply, “Hey, I'm the human, and I'm not shooting an average scene – it's a dimly-lit subject on a black background, and I *want* the image to be darker than what you are recommending!”.

Manual mode is most useful in situations with tricky lighting, and for making Time Exposures, where the light levels are too low for the auto exposure feature to guess accurately. (Time Exposures are also covered starting on page 132.)



Figure 4-17: Manual exposure mode.



Figure 4-16: The viewfinder scale in manual mode. Here, the camera's exposure meter is telling you “I think you're providing the sensor with one stop less light than you should for an average scene!” Fortunately, in this case you *wanted* to underexpose by one stop, so you can safely shoot away after receiving (and then ignoring) this feedback!

To play with Manual Exposure mode, turn the mode dial to “M”, as shown in **Figure 4-17**. The front control dial (next to the shutter release) changes the shutter speed. To change the f/stop, simply press and hold the exposure compensation button (**Figure 4-18**) while rotating the front control dial.



Figure 4-18: When in Manual exposure mode, you can change the shutter speed by rotating the front control wheel. To change the f/stop, hold down the exposure compensation button (labeled “+/-”; right) while rotating the front control wheel.

TIP: In Manual exposure mode, the Alpha 100's front control wheel controls the shutter speed by default (whereas pressing the “+/-” button and turning the control wheel changes the f/stops). You can reverse this if you want to, and have the f/stop be the default control, by invoking **MENU** → **Custom (Purple)** → **1** → **Ctrl Dial Set** → **Aperture**.

Very Cool Tip: While in Manual mode, you can actually lock the exposure via the AEL button (explained in Chapter 5) and then *program shift while in manual mode*. I used this function many times while taking pictures of the camera parts for this book. Since the camera is predominantly black, I would use manual mode to set it to about 1.3 stops darker than the automatic exposure would normally recommend. Then I would say “Oh, wait... I should really shoot this at f/8 instead of [whatever]”! So I pressed the AEL button and turned the front control wheel until the display showed f/8. During this time the shutter speed automatically changed as well to ensure that the overall exposure would still let in the same amount of light as before. This is another example of a small detail that comes in quite handy and can help you work faster in the field when the pressure is on.

TIP: In Manual Exposure mode, setting the ISO to AUTO is kind of ridiculous, since (for example) if you wanted to underexpose by 1 stop, the AUTO ISO might kick in and raise the ISO sensitivity to guarantee an average exposure – defeating your artistic vision! For this reason, if you have set ISO to AUTO, the Alpha 100 will change it to 100 as soon as you enter Manual Exposure mode (and will change it back when you switch to any other exposure mode).

SO, In Summary...

Function	What it Does
Program Mode ("P")	Program mode chooses the f/stop and shutter speed for you based on the available light, zoom lens setting, and ISO. It works well for the vast majority of "normal" pictures and snapshots.
Shutter Priority ("S")	In Shutter Priority mode, you choose the shutter speed, it selects the best f/stop for the ambient light and ISO.
Sports Program	Like regular program mode, Sports Program mode chooses the f/stop and shutter speed for you, with an emphasis on faster, motion-freezing shutter speeds at the expense of some depth-of-field.
Aperture Priority ("A")	In Aperture Priority mode, you choose the f/stop, it selects the best shutter speed for the ambient light and ISO.
Manual Mode ("M")	In Manual mode, YOU tell it the f/stop and

	shutter speed you wish to use. (The camera displays its opinion in the viewfinder as a guide, which you are free to ignore.)
AUTO Mode	Restores all of the settings to their default values so you can quickly use the camera as a point-and-shoot.

Tradeoffs

- When you increase the shutter speed,
 - You freeze motion
 - You let in less light (the picture looks darker)
- When you make the f/stop smaller (i.e., increase the number),
 - You increase what's in focus
 - You let in less light (the picture looks darker)

The relationship between these variables can be seen graphically in **Figure 4-19**.

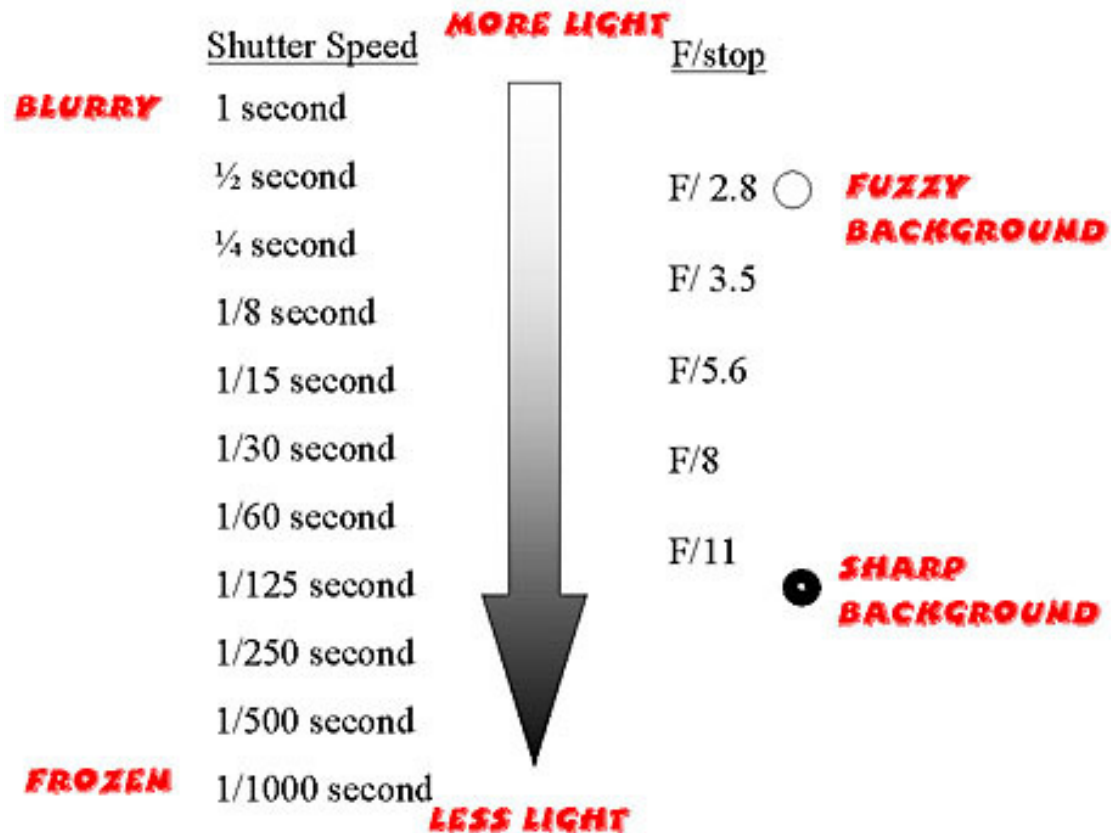


Figure 4-19: Tradeoff between f/stops and shutter speeds.

ISO– How sensitive is the camera to light?

“ISO” stands for the International Organization for Standardization. (Yes, I know; the letters don’t match up.) The organization sets technical standards for science and industry (see www.iso.org); one of which is the sensitivity ratings of film used in cameras. The general rule is this:

Rule: The higher the number, the more sensitive the film is to light.

Corollary: The more sensitive the film is to light, the more “noise” appears in the image (like the example in **Figure 4-20** and **Figure 4-21**).

Here’s another area where digital cameras borrow from the film cameras: digital camera manufacturers have calibrated their sensors so that an ISO 100 rating on the digital camera will be roughly equivalent to ISO 100 speed film.

So how do you choose which ISO setting to use? You can see the tradeoffs in the examples in **Figure 4-20** and **Figure 4-21**. These differences are really noticeable when you make enlargements!

The camera can be made more sensitive to light at any time by increasing the value of the ISO. This comes in very handy when there isn’t much light and you want to increase your chances of a sharp (i.e., non-blurry due to hand and subject movement) picture. Just as the Shutter speed controls blurriness, and the f/stop controls what’s in focus, the ISO setting controls how sensitive the sensor is to light, and therefore how much ‘noise’ is in the image. It is therefore generally wisest to set the ISO to the smallest value you can to ensure the least amount of noise in your image.



Figure 4-20: A Sample shot. Five pictures were taken of this building, each at differing ISO settings. The next figure shows a comparison of the zoomed-in areas (as represented by the yellow rectangle in the image).

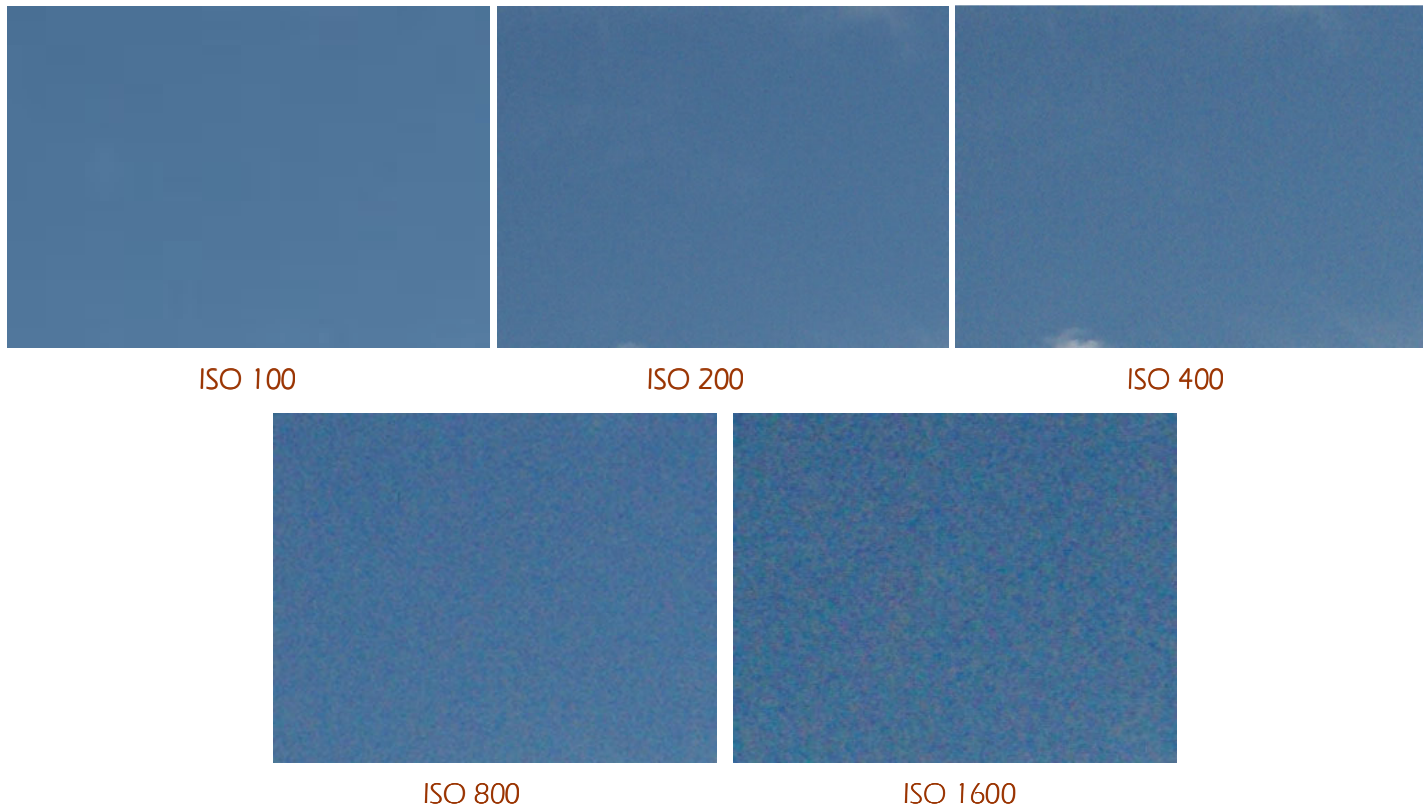


Figure 4-21: An enlarged section of the previous image, at different ISO settings. Notice how “noisy” the image gets with the increased sensitivity.

To change the ISO, turn the Function Dial to ISO and press the center button. Then use the controller to move the selection to the ISO value you want. Then press the controller's center button to select. (The Alpha 100 also lets you choose “Lo 80” and “Hi200” settings; these are zone matching options and they are discussed starting on page 215.)



Figure 4-22: The ISO function (left) and the selection screen it brings up (right).

TIP: In addition to being able to select an ISO setting, there is also an “AUTO” ISO setting, but beware, it doesn’t mean what you think it means! Setting the ISO to “Auto” means the camera will choose an ISO between 100 and 800 (or between 100 and 400 when using the flash). If you want the anti-blurring benefits of higher sensitivities like ISO 1600, it won’t do that for you automatically -- you have to set it yourself!!

YET ANOTHER TIP: You can use the ISO variable to increase the range of the flash! (Or, more correctly, make the camera more sensitive to whatever light does bounce off the subject and back into the camera.) So, if your subject is too far away for the flash to illuminate, try increasing the ISO to 400 or 800 (or higher if you don't mind the additional noise) and see if this improves things.

Exposure Compensation

The automatic exposure function (in all cameras) does a great job metering for average subjects, but they have no idea at all if your subject is whitish or darkish, or if your lighting isn't average. All exposure meters of all cameras have been programmed to provide an exposure that would be correct for an "average" scene – that is, a scene that is made up mostly of greys and colors that are not predominantly white or black. There are many things you can do to override the meter's recommendation (such as spot metering, AEL button, and manual mode – all of which are covered in Chapter 5). Probably the most straightforward is the exposure compensation dial, which essentially tells the camera "Make it Darker!" or "Make it Lighter!"

To invoke the Exposure Compensation function while in AUTO, P, S, or A exposure modes, just press and hold the +/- button (**Figure 4-18b**) while rotating the front control dial left or right. A good

example of its use appears in **Figure 4-23**. The A100 allows you to alter the exposure in 1/3 stop increments.



Figure 4-23: An example of where exposure compensation comes in handy.

Automatic exposure works great for average images, but if your image isn't average (like in a dark clearing, left image) the camera is likely to over-expose the picture in its quest to render the scene as "average". You can override the camera's recommendation and use Exposure Compensation to make it darker or lighter (in this case a setting of "-1" made it one stop darker, closer to the way it actually looked). Good thing you have an LCD screen for instant feedback!

Program Shift

When evaluating the appropriate combination of f/stop and shutter speed to use for a given amount of light, you will find that more than one combination of these variables will produce a correct exposure. For example, any of these combinations below will provide the *same amount of light* for the sensor:

Shutter speed	f/stop
1/1000 (fast)	f/2.8 (wide open)
1/500	f/4
1/250	f/5.6
1/125	f/8
1/60	f/11
1/30 (slow)	f/16 (small)

Which combination to choose depends upon the kind of picture you're taking – for example, if this were a sporting event, you would tend to use 1/1000th at f/2.8 (because the faster shutter speed stops the action), whereas if you were doing a cityscape you would tend toward smaller f/stops and use 1/30th at f/16, because the smaller aperture produces the greatest depth of field. Sometimes you can tell the

camera which combination to favor (faster shutter speeds or smaller f/stops) by telling it what kind of image you're shooting – that's why there's Sports Program mode (which emphasizes fast shutter speeds) and Portrait mode (which I haven't discussed yet, but it emphasizes large apertures). Most of the time, though, in "P" Program mode, the camera will almost always choose the combination somewhere in the middle, like 1/250th at f/5.6 (the yellow row in the table above).

Yet another way to tell the camera to "use the faster shutter speed combination" or "use the smaller f/stop" is the Program Shift. It's not a mode; it's what your front control dial is automatically preprogrammed to do when you're in still image recording mode. Here's how to use it:

1. Focus-lock on a scene (by pressing the shutter release button down halfway).
2. Rotate the front wheel. (This will tell the camera to choose another equivalent f/stop and shutter speed combination that will let in the same amount of light.)

Program Shift is a very handy function which lets you change to a different f/stop / shutter speed combination than what the camera recommended *very quickly, without having to press a lot of buttons or turn a lot of dials*. One dial rotation is all it takes, and it works in P, S (Shutter Priority), and A (Aperture Priority) modes, and only when the flash use is *not* specified. (See next section for a cool tip on doing program shift in Manual exposure mode!)

Time Exposures

Here's the other area where manual mode works and where automatic mode often doesn't: long exposures, sometimes also called "Timed Exposures" or simply "Time Exposures". The principle is quite simple: in scenes where the light is extremely low (like outdoor shots at night), there is not enough light to satisfy the needs of the sensor, and the subject (in this case buildings or trees) are too far away for a flash to be effective. In order for the dim light to register on the sensor you have to put the camera on a tripod (or other steady surface) and leave the shutter open *for a long time*. The more light the sensor can absorb, the brighter the image will appear. Time exposures are one of my favorite techniques for getting "Wow!"-type images that most other point-and-shoot cameras simply cannot produce. Some samples appear in **Figure 4-24**.

To facilitate pictures like these, a long shutter speed is required. The Manual mode allows shutter speeds to be as long as 30 seconds, but sometimes even that is not enough time. For these situations the A100 offers a shutter speed called "Bulb" (so named for historical reasons I won't go into) which keeps the shutter open *for as long as you press the shutter release button* (or as long as your battery lasts, which in my experience is 3.8 hours with a freshly-charged battery). (Such extreme time exposures are undesirable, however, since heat from the camera can affect the sensor and "fog" the image. See "Tip for Astrophotographers" later in this section.)



Figure 4-24: Examples of Time Exposure Images

Since using your finger to keep the shutter release button down can cause the camera to unintentionally shake, and since even the tiniest of vibrations can sometimes cause the final image to appear blurry, the use of an optional Cable Release accessory, the Sony RM-S1AM or the Minolta RC-1000L (they are identical), is highly recommended for long exposures. (See **Figure 4-25**.) The RM-S1AM is a long cable with a shutter release button at the end of it; pressing this button is this same as pressing the shutter release button on the camera. By using the cable release instead of your finger, the camera remains motionless during the exposure and does not pick up vibrations that your hand would induce over long periods. (NOTE: Don't rely on Super SteadyShot for doing time exposures – it was not designed for this kind of use. Instead, use a tripod, cable release, and turn Super SteadyShot OFF.) The RM-S1AM also gives you the option of “locking” the shutter release once the button has been pushed; this makes it easy to keep the shutter open for 30 to 60 minutes at a time without having to keep your finger on the button for that long. **Figure 4-26** contains examples of images taken in this way.

Below are the steps required to take good time exposures:



Figure 4-25: The optional RM-S1AM (also known as the Minolta RC-1000L) remote cable release.

1. Put the camera on a tripod or other steady surface. It is important that the camera be steady; otherwise if it moves during exposure the picture will appear to be blurred.
 2. Make sure that Super SteadyShot is OFF. Super SteadyShot is great for shots that are handheld, but it will not offer any improvement on a tripod, and in fact it will only increase battery drain.
 3. Set the ISO to 100. This will result in the highest-quality image with the least amount of noise.
 4. Set the camera to Manual mode, and use the front control dial to set the shutter speed to “Bulb”.
 5. Set the focus to Manual mode, and focus on your subject.
 6. Set the f/stop appropriately. If there are many items in your composition at different distances away, you may wish to set the f/stop to f/5.6 or greater (f/8 or even f/11) to make sure *everything* is in focus.
 7. Attach a remote release to the camera, such as the optional RM-S1AM discussed earlier. This, combined with a tripod, will ensure that your images will not be blurry due to camera movement during a long exposure.
 8. Take the picture! Start the exposure at 30 seconds and then have a look at the results. If it is too dark you can increase the exposure by holding the shutter open for a longer period of time. Alternatively, if it is too light you can keep the shutter open for less time, or you can change the f/stop to alter the amount of light that hits the sensor.
-

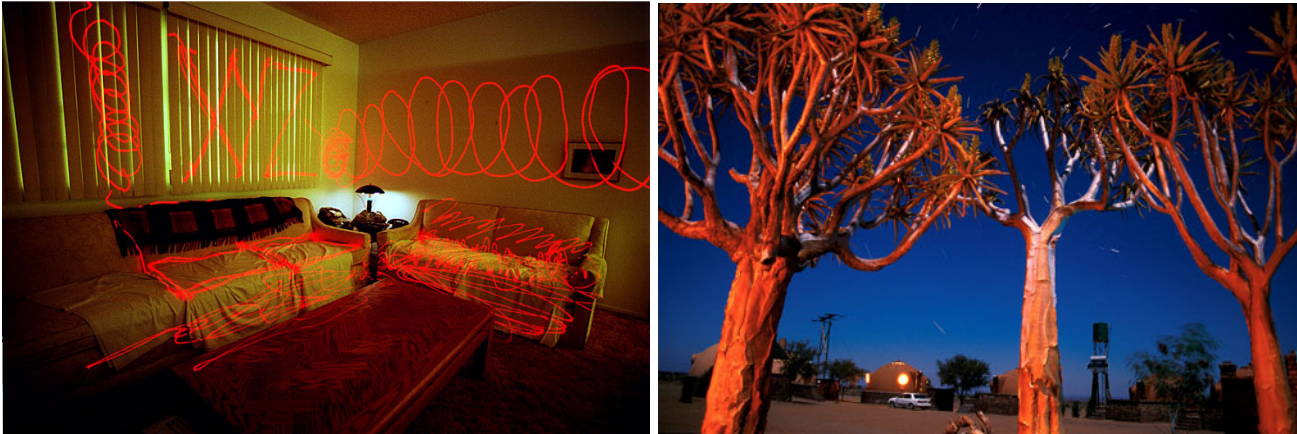


Figure 4-26: More Time Exposure Examples. Leaving the shutter open in a dark room and then “painting” with a laser pointer will allow you to virtually redecorate your living room without actually having to buy paint.

TIP: When in Bulb mode, if you try to use the self-timer you will only get a shutter speed of 1/10th of a second – probably not what you had in mind!

TIP: Noise Reduction (or, “Why Long Exposures take so long to complete.”) - The question comes up endlessly on the Internet’s digital imaging newsgroups: “How come whenever I take a picture that’s longer than one second, the camera takes significantly longer to process the picture?” The answer is, when it comes to long exposures in low light, digital cameras behave differently than film. In low light, digital image sensors tend to produce “noise” in the image, which some people consider to be analogous to the grain in high-speed film.

So to explain what’s going on, allow me first to point you to a menu item you should become familiar with: **MENU → 1 Noise reductn → On**. (Yes, Noise Reductn is spelled incorrectly - to make it fit on the menu screen.) When this mode is set to “On” (which is recommended), the camera will take TWO pictures every time a shutter speed of one second or more is used. The first picture is of your subject - as you would expect. The second picture is taken with all light removed from the sensor, resulting in a black picture which contains only the natural noise from the sensor at the same temperature, ISO setting, and duration as the first picture. With this second “dark frame” picture, the camera has a clear idea of the kind of noise that is permeating the first picture. And then it can remove (to a certain degree) the characteristic noise from the image you just took. This technique, known as “Dark Frame Subtraction”, is very worthwhile, and is responsible for adding to the duration of long exposures. So, if you had set the camera on a tripod at night and took an exposure of a meadow on a moonlit night, the camera would be unresponsive for twice as long as your set exposure as it captures the sensor’s noise for subtraction later on.

TIP FOR ASTROPHOTOGRAPHERS: Digital photography is both better AND worse than film. It's better because you don't have to worry about hypersensitizing the film ahead of time or reciprocity failure; it's worse because digital sensors are mostly blind to infrared light and, for long exposures (5 minutes or more), heat that builds up from the camera's electronics will start to "fog" the sensor during the exposure. Normally this shows itself in the form of a reddish haze which starts in the upper-left-hand corner; in Figure 4-27 you can see that a 20-minute exposure fogged the entire top third of the image!

There are well-known ways to eliminate this artifact, and it has to do with shooting RAW, doing a custom dark frame subtraction, taking multiple, smaller exposures, and layering them with a certain degree of transparency in Photoshop. Unfortunately, such technical stuff is WAY outside the scope of this book! An advanced treatment on the subject can be found at: http://www.astropix.com/HTML/J_DIGIT/T_OC_DIG.HTM. With these techniques, digital astrophotography greatly exceeds the quality available with film!

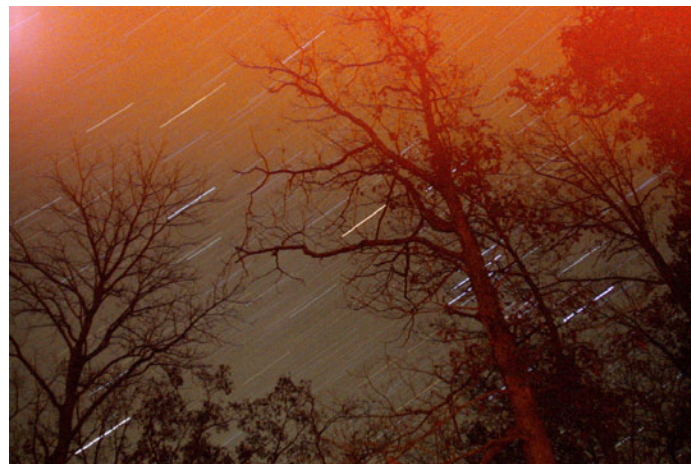


Figure 4-27: Heat buildup within the camera can result in fogged pictures for exposures longer than 5 minutes.

The Scene Selection Modes

The A100 has six “Scene Selection” modes in addition to the standard P, A, S, M, and AUTO. These are designed to quickly implement a combination of the camera’s settings ideal for one of several common shooting scenarios.

Sports Program Mode

One of the Scene Selection modes, Sports Program mode, has already been discussed earlier in this chapter (page 106). (Recall that Sports Program Mode will choose the fastest shutter speed possible for the given amount of light.)

Sunset Mode

Now, here’s a feature that never could appear on a film camera. Sunset Mode (**Figure 4-28**) is designed to make your sunsets look a little more spectacular. When in Sunset mode, the camera knows to ignore the brightest and darkest parts of the picture when evaluating the scene, leaving it to expose only for the rest of the sky (which is the old-school way of metering for a sunset.) In addition, the reds and yellows of the image – the very colors that are responsible for the beauty of a sunset – are enhanced a little to make the image just that much more pleasing. A foolproof sunset!! (See **Figure 4-29**.)



Figure 4-28: Sunset Mode



Figure 4-29: Sunset Mode Examples, without (left) and with (right). Sunset Mode enhances the yellows and reds in an image.

Portrait Mode

Like the Sunset mode above, Portrait mode (**Figure 4-30**) can take advantage of knowing the kind of picture you're trying to take and help you along. Portrait mode does three things:

1. It invokes the opposite of Sports Program mode; i.e., it emphasizes shallow depth-of-field (large f/stops, like f/2.8), which is often a component to a pleasing portrait.
2. It assumes the largest portion of your image is your subject's face, and concentrates its exposure calculation on that.
3. It adds a little warmth to the color which usually makes for the most pleasing portraits.

To get the most out of this mode and end up with a classical-looking portrait, make sure you use a lens with an effective focal length (i.e., 35mm equivalent) of between 100mm and 200mm AND make sure that you have “good light”, such as that provided by a large, North-facing window. (See Chapter 6 for more information on “good light”.)

So, invoke Portrait mode by turning the mode wheel to “Portrait”, zoom in, and shoot away! **Figure 4-31** has some examples of good portraits taken in this way.



Figure 4-30: Portrait Mode



Figure 4-31: Portrait Mode Examples

Macro Mode

Macro mode (**Figure 4-32**) is almost identical to Sports Program mode, in that it tends to favor shallow depth-of-field. Recall that “Macro” is photographer-ese for “taking pictures of things up close” like insects and flowers. It is best used with a Macro lens, such as the 50mm f/2.8 or the 100mm f/2.8; since other lenses may not have the ability to focus so closely to a subject. Examples of Macro shots can be seen in **Figure 4-32** and, self-referentially, in **Figure 4-33**.



Figure 4-33: Macro Mode.



Figure 4-32: “Macro” means “taking pictures of things up close”. A special Macro lens will produce the best results, and Macro Mode will set the camera’s parameters to help get a striking shot.

Landscape Mode

Although the instruction manual is kind of vague when describing what Landscape mode does (**Figure 4-34**), my own tests reveal that it increases the contrast a little bit and also increases the intensity of the colors mildly (See example in **Figure 4-35**). The effects are subtle when shrunk down in this example, but they are there. In fact, you might prefer the “out-of-the-box” look if all images were shot using Landscape mode.



Figure 4-34: Landscape mode



Figure 4-35: An urban scenic taken in Program mode (left) and in Landscape mode (right). Landscape mode increases the contrast and the color saturation, and just might be your preferred shooting mode for all of your photos.

Night View / Portrait Mode

Night View / Portrait mode (**Figure 4-36**) is the same thing as using the flash in Manual mode with a long shutter speed. Also known as “Slow Synch” in the rest of the photographic world, Night View / Portrait Mode uses the flash to illuminate your subject properly, but then leaves the shutter open a little longer so the sensor can “absorb” the light from the background. The result is a nicely balanced picture, with both foreground and background equally represented. **Figure 4-37** shows an example of a normal flash picture in “P” mode, and a flash picture using Night Portrait Mode which brings out the background lights.

One caveat of the Night View / Portrait mode is that you must instruct your subjects to remain still even after the flash has gone off – because the shutter will remain open for several seconds after the flash has fired, and moving subjects can cause an eerie and undesirable ghost effect.



Figure 4-36: Night View / Portrait Mode



Figure 4-37: Night View / Portrait Mode Example. The left image was taken in “P” (Program) mode with flash. The right was taken in Night View / Portrait mode with flash, which enables you to “burn in” the background, providing a picture a little closer to the way you remember it being.

TIP: Through most of my photographic life I can recall seeing a beautiful shade of blue in an evening sky, taking many pictures of it, and being immensely frustrated that the beautiful shade of blue came out as a muddy black-blue when I got my slides back. The beauty of the original scene could not be captured for others to enjoy.

This is one area where the digital cameras are superior to film, for the digital sensors seem to be hyper-sensitive to that particular shade of blue. Without any special settings or fancy photo editing techniques, the digital cameras simply capture what the eye sees at this magic time of day. (See the images of Figure 4-38.)



Figure 4-38: Digital gives superior blue skies.

Summary of Scene Selection Modes

Function	What it Does
Sunset Mode	Enhances the sunset by emphasizing the warm colors.
Portrait Mode	Emphasizes small depth-of-field, and brings out the warm colors.
Night View / Portrait Mode	Combines flash exposure with a long shutter speed to “burn in” the background lights.
Landscape Mode	Slightly increased color saturation and contrast.
Sports Program Mode	Chooses the fastest shutter speed for the available light.
Macro Mode	Macro Mode seems to do the same thing as Sports Program mode.

Summary of Chapter 4

In this chapter the following photography concepts were de-mystified:

- Shutter Speed – how much time the sensor is allowed to absorb light.
 - Shutter Priority mode – you set the shutter speed, the camera sets the appropriate f/stop for the available light.
 - Sports Program mode - just like normal “P” (Program) mode, except the camera will favor faster shutter speeds whenever it can.
 - f/stops – the circular opening in the lens. The smaller the f/stop (like f/1.1), the more things will be in focus in front of and behind the focus point.
 - Aperture Priority mode – you set the f/stop, the camera sets the appropriate shutter speed for the available light.
 - Program Shift mode - identical to Aperture and Shutter Priority mode, but much faster to access.
 - Depth-of-Field Preview – lets you preview how much of your composition will be in focus for the chosen f/stop.
-

- Manual mode – YOU set the f/stop and the shutter speed, and the camera obeys.
- ISO – you can change how sensitive the camera is to light. The higher the ISO, the more sensitive it is to light and the “noisier” the image will be.
- Time Exposures – leaving the shutter open for long periods of time to capture nightscapes. (Lets you take some *very* cool images!)
- Scene Selection Modes (six of them) and what they do.

Chapter 5

Really Cool Advanced Functions

THESE are the reasons you sprung for a DSLR!

In this chapter I will discuss some of the advanced features in detail:

- All of the different focusing modes
- Spot Metering and Exposure Lock
- The award-winning Super SteadyShot™ feature
- White Balance
- The 8 different Flash modes
- The different “Drive” modes
- Different ways to customize the camera
- The infamous Histogram display
- Color / DEC Digital Effects, like tweaking the color intensity, contrast, and sharpness
- Zone Matching explanation and examples

Focusing Modes

We talked about focusing in Chapter 2. As promised, with the “Christopher Columbus” model of learning, there is more to know that bears mentioning here, and I will give it to you in small increments.

The A100’s focusing controls are distributed in two different places: A physical switch (one that can only switch between “Autofocus ON or OFF), and one of the function screens (**Figure 5-1**). The “DMF” (Direct Manual Focus) function is in the function screen too, a function which is explained later in this section.

Below is what all the different focusing modes mean.

Single and Continuous AF with Subject Tracking

The Alpha 100 has four focusing modes: Single (“AF-S”), Auto (“AF-A”), Continuous (“AF-C”), and Manual Focus (“MF”). “Single” mode (“AF-S”) is ideal for taking pictures of things that don’t move, like statues, buildings, a posed group shot, or my investment portfolio. ☺ It behaves as described in Chapter 2: Once you press the shutter release halfway, and it achieves autofocus, it gives you a green light (at the bottom of the viewfinder), an audible “chirp”, and then it will not try to focus any more after that – it essentially achieves “focus lock”.

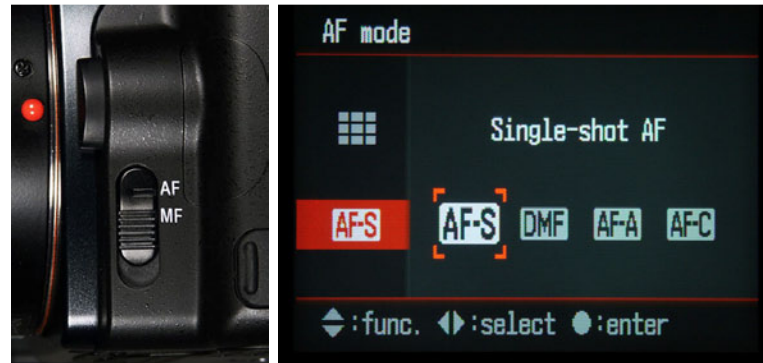


Figure 5-1: The A100’s Focus Mode switch and the associated Function screen (accessed via the Function Dial).

This is the default mode and is useful in most situations.

“Continuous” autofocus mode (“AF-C”) is ideal for situations where your subject is moving – children running around, or perhaps small animals which refuse to hold still. When using Continuous AF mode, it’s probably best to keep the camera in wide-area focus mode (see Chapter 2) and let the camera decide which focusing point sensor to use as it tracks movement – this method will give you the best chances of focusing success.

Keep in mind that in “Continuous” mode, once the camera achieves autofocus, it will *not* give you a steady green light and an audible “chirp”. Instead, it will continue to track and refocus (the subject is moving after all, right?) in an attempt to keep the subject in focus until the final shot is taken. You can always tell when you’re in Continuous focus mode, because the round focus indicator along the bottom edge of the viewfinder is surrounded by two sets of parentheses which is supposed to convey movement. As a shortcut, when you put the camera into Sports program mode, it automatically invokes Continuous Focus mode for you.

Finally, there is “Auto” Autofocusing mode (“AF-A”), in which you empower the camera to decide whether to use “Single” or “Continuous” mode. Although this is a convenient setting for those who don’t wish to futz with their camera settings a lot, sometimes the camera thinks that a stationary subject is actually moving, thereby complicating what otherwise should be a fast picture-taking operation. Advice: use “Single” mode as your default setting, unless you’re shooting sports or other moving objects, in which case you should manually invoke “Continuous” mode.

Why Bother with Manual Focusing?

You may ask yourself, “Gee, with so many sophisticated focusing settings, why in the world is there a Manual focusing mode?” Well, you asked a good question. The answer is, in some situations where the subject-to-camera distance is not changing (e.g., when you’re shooting a portrait), you only need to focus once. The standard way is to switch the camera into Manual Focus Mode (**Figure 5-1**) and then turn the lens’ focusing ring until the image appears to be sharp in the viewfinder. Another, faster way is to use “Single” AF mode to focus once and then move the focusing switch to Manual focus mode. (If you do it carefully the focusing distance of the lens stays the same.) Pre-focusing in this manner can actually make the camera respond faster and make it just a little bit easier to handle if you’re the kind of person who shoots 20 or 30 portraits just to get the one “perfect” shot.

Street or sports photography may be another venue where, if you pre-set the distance, you will be able to take the picture the *instant* the shot happens without having to wait for the camera to focus. A good example of this is equestrian events, where you can pre-focus on the hurdle before the horse jumps over it. (Make sure to set the camera on Sports Program Mode or Shutter Priority mode so it will favor the higher-shutter speeds needed for fast action!) The skateboarding image in **Figure 5-2** is another good example – I knew how far away the skateboarder



Figure 5-2: Use Manual Focus for times when the shot won't last.

would be, and so I pre-focused for the distance and then waited for the skateboarder to appear right in front of me. When pre-focused in Manual focus mode, I can get the shot before it disappears a fraction of a second later.

DMF – Direct Manual Focus

What do you get when you cross autofocus with manual focus? The answer is the Direct Manual Focus mode, which can come in handy on certain occasions. In a nutshell, once the camera has focused on the subject and given you the focus confirmation signal, it automatically puts itself into manual focus mode and you are then free to tweak the focusing by turning the focus ring at the base of the lens.

DMF mode can be set in the FOCUS menu as shown in **Figure 5-3**. This only works when the focus mode switch is set to “AF” (Auto Focus).



Figure 5-3: How to invoke Direct Manual Focus mode.

Spot Metering and Exposure Lock

Okay, so by now you're familiar with the concept of "focus lock". Another kind of "lock" that the A100 can perform is "Exposure Lock". Just as focus lock will allow you to focus on your subject and then remember that setting while you recompose, Exposure Lock will take note of a certain exposure, then remember that setting while you recompose.

Furthermore, just as you can "spot focus" by selecting one of 9 focus points, you can also "Spot Meter" (only look at a tiny area of the frame to determine exposure, as shown by a small circle in the center) to get perfect results quickly in less-than-perfect lighting situations.

Want an example? Check out the difficult-to-expose image in **Figure 5-4**: If you had simply pointed your camera at this scene and snapped the picture, the camera would have said, "Whoa! There's *waaaaaay* too much light here!" and would have adjusted the exposure so that the white curtain looked a medium grey (the proper setting for an "average" picture), and the people would be nothing more than silhouettes (if they were visible at all). With Exposure Lock (which is sometimes called AE Lock or just AEL), you tell the camera, "THIS is my subject, and I want you to meter for THIS, and ignore everything else".



Figure 5-4: A difficult-to-expose image.

This leads us to:

Basic Exposure Lock – the AEL button

Figure 5-5 shows the Auto Exposure Lock button. When you press and hold it, it remembers the f/stop and shutter speed of the scene you were looking at for as long as you hold the button in. If you then pointed the camera to some differently-illuminated object (like the sun as an extreme example (which is NOT recommended!!!)), the memorized f/stop and shutter speed would be what you'd get when the shutter release was tripped.



Figure 5-5: The Auto Exposure Lock (AEL) button..

TIP: I have a hard time holding that little AEL button in for long periods of time, so I set **MENU → Custom (purple) → 1 → AEL Button → [Spot] AE Toggle**. This way, I press it once to lock the exposure, and then press it again to go back to “live” metering.

But wait! There are TWO AE Toggle settings! The bottom one automatically selects spot metering when invoked, a very handy function which I keep as part of my default settings.





Figure 5-6: A complex lighting situation handled in 0.5 seconds thanks to the combination of AEL and spot metering.

Spot Metering

For shooting a difficult white picture like **Figure 5-4** above, the AEL function isn't always enough. While the AEL button remembers the exposure recommendation for the *entire frame*, I want to tell the camera, "Only pay attention to this little tiny part of the picture (the two people in the corner) when you're assessing the proper exposure, and ignore that huge white background!" And so the concept of "Spot Metering" was invented, which does exactly this. Spot Metering mode only pays attention to the light it sees in the center circle of the viewfinder, and ignores everything else when making its exposure recommendation.

There are two ways to enter spot metering mode on the A100. The easiest and preferable method is to press the AEL button (after having set **MENU** → **Custom (purple)** → **1** → **AEL Button** → **[Spot] AE Toggle**) – this instantly locks the exposure reading for the center circle of the viewfinder, allowing you to quickly recompose and then shoot. The 2nd way is to turn Spot Metering on all the time by using the function dial (**Figure 5-7**)

So, to take the picture in **Figure 5-4**, all I had to do was:

1. Put the camera into Spot Meter mode.
2. Position the small circle in the viewfinder to overlap the two people in the corner (the subject).
3. Press the AEL button to lock the exposure.
4. Focus lock on the two people in the corner
5. *Recompose the image* so that the subjects are now in the lower-right-hand corner, and shoot.

I think you'll agree that the impact of the image was worth the extra trouble of spot metering just for the subjects. And, because of the design of the camera's control, using spot metering wasn't all that much trouble!

(Note: You'll notice that I didn't talk about the third metering mode, the one that isn't "Spot" or "Multi-Segment Metering". It's called "Center Weighted" metering mode, and emulates old-fashioned camera metering that was prevalent in the 1970's. There's really no good reason to use it; it's there for old timers who don't trust the decisions and intelligence behind the multi-segment metering.)

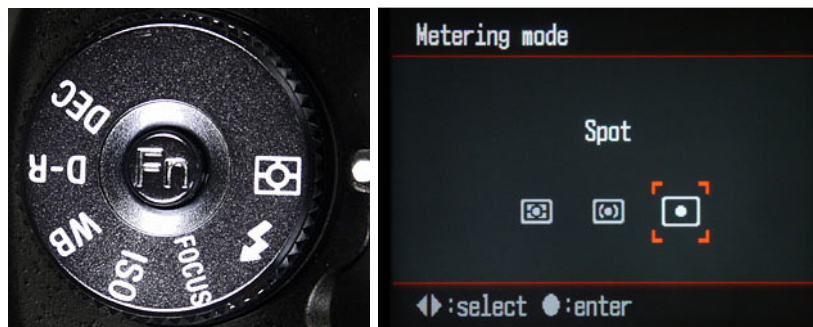


Figure 5-7: Use the Function dial to invoke spot metering mode permanently. (There's a faster and more preferable way – see tip on previous page!) The first option on this screen, Multi-segment metering, is recommended for everyday shooting.

TIP: Notice that in the above procedure, locking exposure and locking focus were two separate operations. Wouldn't life be swell if they could be combined – if you just put your subject in the center, focus-lock, and have the camera also meter for what is (presumably) your subject? Well, ta da! It can! Whenever the metering mode is set to Multi-Segment Metering, pressing the shutter release button halfway locks both the focus AND the exposure. Such a setting can be used to easily shoot in difficult lighting, like the image in Figure 5-6.

Okay, so this might have been a little confusing, so let me quickly review these very important interrelated functions:

Metering Types	✓ Multi-Segment Metering - The most sophisticated – takes several areas of the picture into account when making an exposure recommendation. (Recommended Setting). ✓ Spot Metering – Only pays attention to the center circle of the viewfinder when making an exposure recommendation. Useful for tricky situations where you want to tell the camera “Meter only for THIS and ignore everything else!” ✓ Center-Weighted.- It's there for older photographers. Multi-segment tends to produce better results.
AEL Types	Auto Exposure Lock “locks onto” the current exposure reading and doesn't change it even if the light or the subject change. There are

	4 types which can be changed via MENU → Custom (purple) → 1 → AEL Button → [Pick One]: ✓ AE Hold – remembers the current exposure recommendation for as long as you hold that little button down. ✓ AE Toggle – remembers the current exposure recommendation until you push the AEL button again. ✓ [Spot] AE Hold - Same as AE hold, except that it only takes the viewfinder's center circle into account when remembering the exposure. ✓ [Spot] AE Toggle – Same as AE Toggle, except that it only takes the viewfinder's center circle into account when remembering the exposure. (Recommended Setting)
Best combination	If you adhere to the recommended settings above (Multi-segment and [Spot] AE Toggle), you can have the best of both worlds and be able to switch VERY QUICKLY between the two: ✓ Multi-Segment metering will be in use most of the time ✓ Pressing the AEL button instantly changes to SPOT metering mode for difficult situations. (Pressing AEL again goes back to Multi-Segment metering.) Very handy!



Super SteadyShot™

In Chapter 1, it was revealed that the Super SteadyShot feature sets the Sony A100 apart from most other DSLRs. When shooting at telephoto settings in low light, it will deliver sharp pictures up to three stops slower than what a conventional camera can deliver. This means you can shoot at telephoto in lower light and still get sharp pictures as compared to most other cameras.

The way it works is very innovative: motion sensors in the camera's body can sense certain kinds of acceleration in the "X" and "Y" directions (or more accurately, "Pitch and Yaw" directions) and then move the image sensor by an equal and opposite amount, in real time, to compensate.

But, as also mentioned in Chapter 1, having Super SteadyShot does NOT mean that you never need a tripod, or that your pictures will never turn out blurry. It will help you out only in borderline situations, like the two examples of **Figure 5-8**. In fact, the camera tells you when the feature will be most effective using the LED scale on the lower-right-hand-corner of the viewfinder. In use, as you



Figure 5-8: Super SteadyShot can help handheld shots in low light. The top image is with SSS off; the bottom image is with it on.

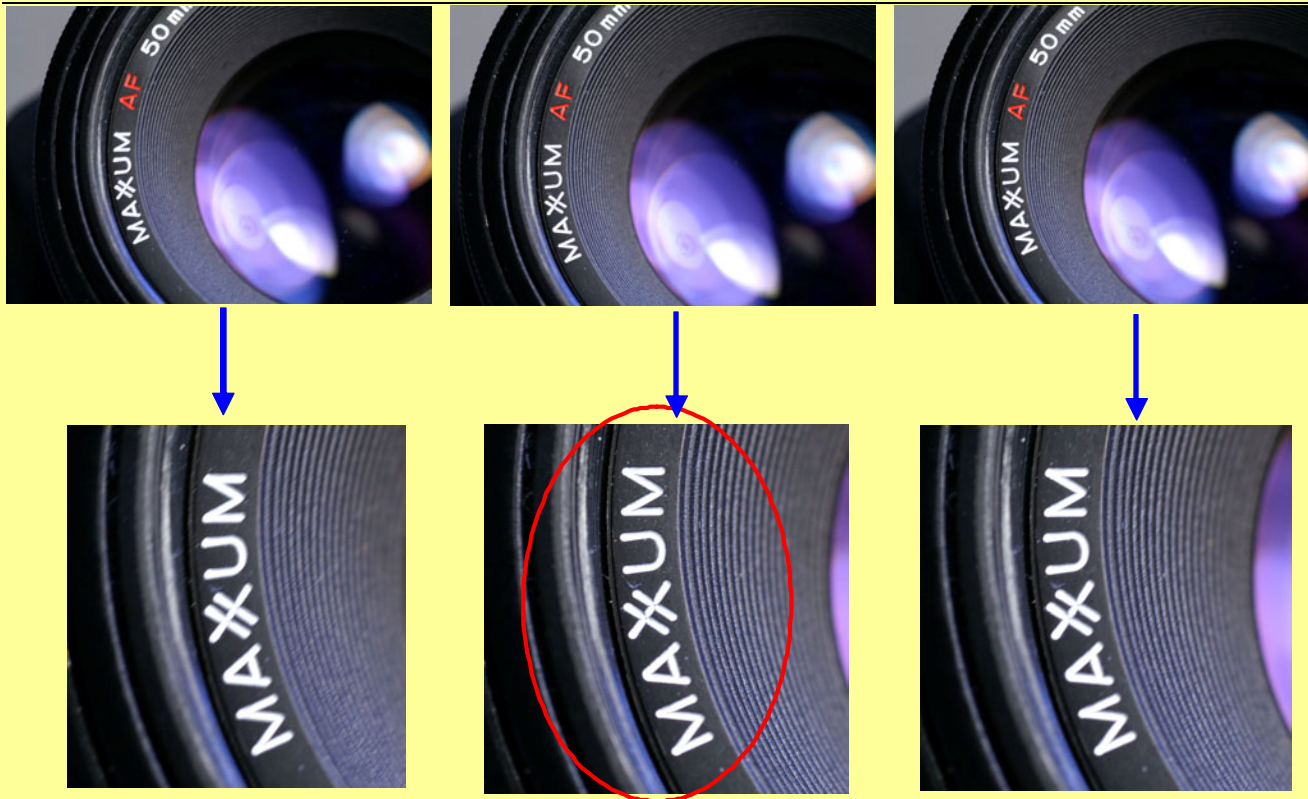
look through the viewfinder to focus and compose your image, the green LEDs on the right-hand corner (Figure 5-9) will all glow in proportion to how shaky the camera is at the time – the more LEDs, the shakier your hands presumably are. (Using long lenses, like 200mm and greater, magnifies any shakiness your hands naturally have, causing the number of LEDs to increase.) The shakiness display is provided for you to give you the opportunity to dampen the camera – perhaps hold it differently, or reposition your arms so they won't shake so much – as well as give the camera a chance to adjust to the shakiness. If you can get the number of LEDs down to just one or two bars, the Super SteadyShot feature will have a much, much better chance of being effective.

In my experience, unless you are a mime, when you constantly see more than 4 LEDs in the viewfinder, it's time to turn Super SteadyShot OFF and break out your tripod.



Figure 5-9: The Super SteadyShot scale in the lower-right-hand corner of the viewfinder shows you how shaky your hands are, and therefore how hard the system will have to work. For best results, wait a few moments until the number of bars is reduced (showing how the system adapts) before shooting.

TIP: The owner's manual says that Super SteadyShot should be turned off when the camera is mounted on a tripod. This is because control systems are inherently imperfect, and if there is no movement to counteract, then the actuators will likely react to some phantom noise coming from the pitch and yaw sensors, and otherwise move the CCD at times when it shouldn't. This rule only applies to rock-solid, really good tripods, though. If you happen to own a cheapie tripod and use it with the center column all the way up and it's a windy day, your image might just benefit a little by having it on. To be safe, try it both ways.



TIP: While Super SteadyShot is a great stabilization aid for handheld shots, you can increase the chances of a sharp picture under borderline conditions even further by shooting in Continuous Advance mode, and take a sequence of 3-5 shots. Just hold down the shutter release button and remain as steady as possible. With this technique, both you and the Super SteadyShot mechanism will have a little more chance to adapt.

White Balance

Have you ever taken a picture indoors at night using an old film camera (without a flash), and were surprised to see your results come out looking a little yellowish? Or have you ever taken pictures under a fluorescent light, only to step back in horror when the pictures turned out sort of a ghoulish green? If so, you inadvertently witnessed evidence that all artificial light is NOT the same!

It turns out that, while sunlight contains all seven colors of the rainbow, incandescent light (that which comes from light bulbs) and fluorescent light radiate only 2 or 3 colors out of the spectrum. Our brains do a wonderful job of adjusting to this different light, but alas, one of the biggest drawbacks of film is that it cannot automatically correct for indoor light. The result is often strangely colored snapshots.

This is where digital cameras are a huge improvement – they have the ability to sense what kind of light they are shooting under, and correct for it automatically! Every pro in the world salivated over this feature when digital cameras started to appear. The ability for the camera to adjust to any kind of indoor light is called “White Balance” – it means that if you take a picture of a white wall, it will come out looking white even though it is being illuminated by something other than pure white light.



Figure 5-10: White Balance Examples.

Photos taken under normal light bulbs (also called “incandescent” lights) can turn out yellow-orangish, but the proper white balance setting can make it look the way we remember seeing it.

Auto White Balance and Pre-Set White Balance

The A100 has the ability to look at a scene and figure out what kind of light is being used, and to adjust for it automatically – a feature called “Auto White Balance”. This feature is turned on by default, and under the vast majority of circumstances it will make good decisions and you will never have to worry about it.

BUT, just as no camera can always guess what exposure is right for the kind of picture *you* want to take, no camera can guess the correct White Balance 100% of the time. Sometimes there is a mixture of incandescent (yellowish) and fluorescent (greenish) light. Or, what if you’re taking a picture of a yellowish wall; how can the camera know that the color is due to the wall and not the kind of light that’s illuminating it? It is for tricky situations like these that the A100 allows you to specify what kind of light you’re shooting under.

There are three steps to choosing a pre-set white balance:

1. Move the Function Dial to the WB (White Balance) position (**Figure 5-11**), press the center FN button, and then use the UP and DOWN cursor keys to select the second option in the left-hand side, which is “Pre-set White Balance”.



2. Using the LEFT and

Figure 5-11: The Pre-set White Balance Setting and its associated screen.

RIGHT cursor keys you can then select from one of the following options (detailed below)

3. Then use the UP and DOWN buttons to choose the intensity of the color balance setting - -3 to +3, or -2 to +4 for Fluorescent pre-set. (See White Balance Bracketing section on page 187.)

I'll discuss the color balance setting intensity in a moment. In the meantime, the Pre-set White Balance functions are:



Daylight – the sun is shining, the grass is green, and your subject is being illuminated by all seven colors of the rainbow (i.e., white light). This White Balance setting is designed to render images correctly under this “full spectrum” sunlight.

Shade – the light in open shade is kind of like light on a cloudy day, but even bluer. (You'd never guess this by just looking at a shady spot, but if you took a scientific instrument which measured the color of the light in open shade, you'd see the difference!) The Shade setting provides even more yellow to the image than does the Cloudy setting, plus some magenta. (See **Figure 5-12.**)



Cloudy – although it's not artificial light, a cloudy day tends to be just a tiny bit bluer than a full sunny day. This setting adds just a touch of yellow to the picture to compensate.



Figure 5-12: An open-shade portrait taking using the Daylight setting (left) and the Shade setting (right).



Tungsten – another word for “Incandescent” (which in turn is another word for “light bulb”). Incandescent bulbs give light that is predominantly yellow-orange. Setting the camera to Tungsten mode lends a compensating bluish cast to the image.



Fluorescent – the long, tubular lights have a tendency to look green to a camera. This setting gives the image a compensating magenta cast.



Flash -- the camera’s electronic flash is designed to send out all seven colors of the rainbow, just as daylight does. Setting the White Balance to Flash is the same as setting it to Daylight – NO color compensation takes place.

Tweaking the Pre-Set White Balance

When choosing a pre-set white balance as described above, the A100 gives you the opportunity to tweak the amount of warmth (or lack of it) of each setting via the UP and DOWN keys. This essentially goes from a little bluer (-3) to a little redder (+3). Although this feature might appeal to those who are obsessed with accurate color, there are actually two much better tools for color accuracy within the A100: the absolute color temperature setting, or the custom white balance, both of which are described on pages 171 and 170, respectively. **Figure 5-13** shows an example using the various settings for Tungsten balance.

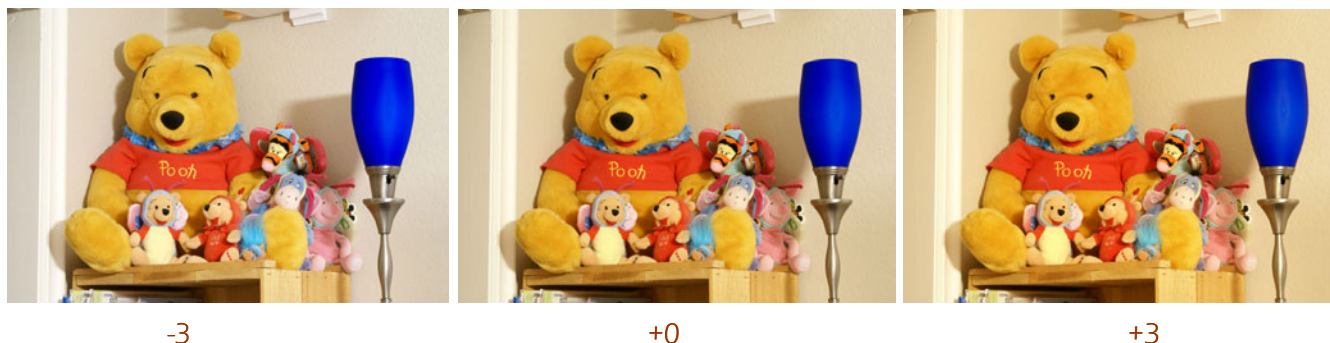


Figure 5-13: Examples of tweaking the pre-set white balance. This shows 3 of the Tungsten Pre-set hues, starting from -3 (left, bluish) to neutral (center) to +3 (right, reddish). The correct value very much depends on the kind of light source you use.

Custom White Balance

Custom White Balance is the control you use when you have a mix of white, incandescent, fluorescent, ultraviolet, and you-name-it type of lights illuminating your subject. Or when you're under fluorescent lights that are a non-standard shade of green, or under a soft-white bulb which is a non-standard shade of yellow. The way

Custom White Balance works is pretty ingenious: you aim the camera at a nearby white object (that is lit with the same light that is falling on your subject), preferably a wall or a piece of white paper. The camera can measure which of the rainbow colors it sees, *and then it can compensate automatically for the rainbow colors it doesn't see*. It will make the right choice every time.



Figure 5-14: The Custom White Balance Control

To Use Custom White Balance

- 1) On the White Balance screen, go down to the last option as shown in **Figure 5-14**, and choose the rightmost option, “Setup”. The screen in **Figure 5-15** appears.
- 2) Do as the screen says! Fill the viewfinder’s center circle with your white surface and press the shutter release button.

From then on, the custom value will be remembered every time you move the WB dial to the Custom White Balance setting. (Until you set a new value, of course!)

If you want to recall the previously-stored white balance setting, just return to the Custom White Balance menu (Figure 5-14), select “Recall”, and press the center button to select it.

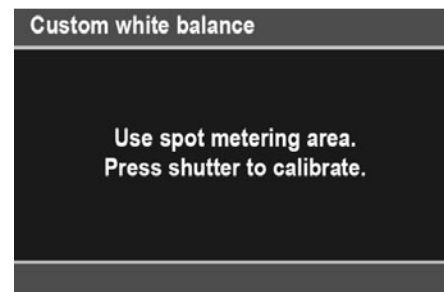


Figure 5-15: When setting the custom white balance, the camera tells YOU what to do!

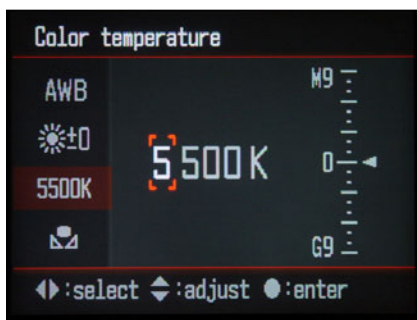


Figure 5-16: Absolute color temperature can be dialed in via the “K” setting.

The “K” setting

There is a 4th setting on the white balance control dial called “K” (**Figure 5-16**). This setting is designed for professionals who prefer to work in terms of exact color temperature instead of vague terms like “cloudy” or “shade”. Professionals measure the whiteness of their light by using “Color Temperature” readings, measured in K (Kelvin). For example, an incandescent bulb (yellowish) registers on color temperature light meters as 3400K, whereas daylight is 5500K. Chances are, if you had to read this paragraph, you’re not in need of this feature. ☺

Flash, Fill Flash, and Wireless Flash

“Why are there so many flash modes?” The short answer is “because with the extra modes, your flash pictures can look more natural.”

There are no less than SEVEN different modes for the flash (eight modes if you count flash exposure compensation). In my mind, the most useful flash mode is “Fill Flash”, which can be invoked via the Flash Function dial (**Figure 5-18**). This tells the camera’s flash to behave as the all-purpose, built-in flash that we’ve come to expect from point-and-shoot cameras.

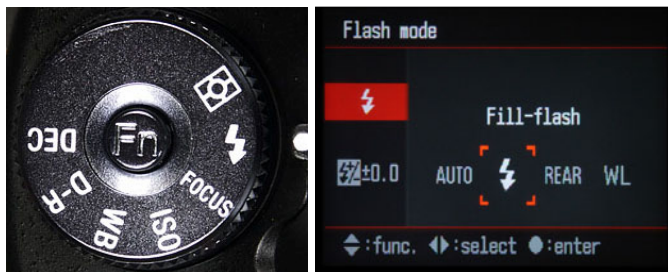


Figure 5-18: Selecting “Fill Flash” from the Flash Function dial.



Figure 5-17: Portrait with and without fill flash. These shots were taken about 5 seconds apart, demonstrating that using flash also has an effect on ambient exposure.

Let's discuss the differences between the seven flash modes in detail. The first four settings are choices you have in the FLASH MODE menu (again, **Figure 5-18**).

1) and 2) Auto Flash and Fill Flash

The first way is “Auto Flash”, which is so close to Fill Flash that we will discuss them both in the same section. Auto Flash is what all point-and-shoot cameras use. Unbeknownst to you, however, the camera actually uses the flash very differently in this mode, depending on how much light there is in the scene.

Normally, the camera makes the assumption that the flash (either the built-in pop-up flash or a larger flash mounted on the hot shoe) will be providing the *only* source of light. If you are shooting a dance party in a darkened room this is not a bad assumption and the images will come out well-exposed.

But, when the majority of the subject's illumination comes from another source (usually the sun), then the flash gives only a tiny burst of light, just enough to lighten the shadows a little bit (see **Figure 5-17**). The A100 automatically switches between these



Figure 5-19: Flash can also be used to better capture action and to give your subjects better illumination. (Birds are usually not this well lit!).

two modes when in Fill-Flash mode. The best time to use it is when your subject is too dark (even if it's bright outside!) For example, in **Figure 5-17** earlier, the light was poor and the subject (the face of the fisherman) was in shade, under his hat. Another fill-flash example can be found in Chapter 6.

What's the difference between Auto Flash and Fill Flash (the first two options in the Flash Function Dial's menu)? One difference only: When in Auto Flash mode, even when the flash is up it will only fire when the camera thinks it's necessary; whereas when Fill Flash is selected the camera will ALWAYS fire the flash. "Fill Flash" is the preferred mode because, when you're shooting up close and want to lighten the shadows in your subject's face, you don't want your camera second-guessing you whether to fire the flash or not.



Figure 5-20: It doesn't have to look like you used a flash.

Comparison of Auto Flash (left), and No Flash (center). Some people feel that the best result can be had by placing the flash on Fill Flash and setting Flash Compensation to -1.7 stops, as in the right picture.

TIP: Sometimes, even when the flash is set to “Fill Flash”, the image can still look as if a flash had been used. (See examples in Figure 5-20.) If the “Fill Flash” sometimes goes a little too far and tries to be the main source of illumination, you can correct for it beautifully by using the flash exposure compensation.

Just as you can control how light or dark a picture is by adjusting how much light enters the camera (+/- control), you can also control how much illumination can come from the flash via the Flash Compensation screen (**Figure 5-21**). I have found that by using a flash exposure compensation value of -1.7 (that is, 1.7 stops less than normal), you can add just a touch of light to your subject to help fill in the shadows without having it look as if you used a flash. (This is only when shooting outdoors in full daylight, of course. When shooting indoors where the flash will act as the primary source of light, you'll want to set flash compensation back to $+0$ (no change) for the best exposures.)



Figure 5-21: The flash compensation screen

3) Red-Eye Reduction Mode

The second flash mode is for slightly abnormal situations. For example, there is nothing more *unnatural* than red-eye in flash pictures. As you probably know, red-eye often occurs when the flash sits too close to the camera lens – part of the light goes right to the subject’s retina and then bounces right off again, like it was a mirror, back to the camera lens. But because the retina is not white (it is, in fact, red for humans, and a greenish white for many animals), the color of the reflection back to the camera is red, not the white of the flash that illuminated it. This is the cause of the dreaded “red eye” effect, and a nice sample of it appears in **Figure 5-22**.

There are two ways to fix red-eye. One way is to move the flash so it’s not so close to the lens. This can be accomplished by using an accessory flash, either a Sony HVL-56AM or HVL-36AM, or a Minolta 3600HS-D or 5600HS-D (See **Figure 5-23**) mounted in the hot shoe on top of the camera. When in place, the distance from the flash to the lens is large enough to ensure that the light from the flash will bounce out of the eye at a different angle (if at all), eliminating red-eye altogether. (That is probably the *best* strategy for getting rid of red-eye – not only does it solve the problem, it also allows you to shoot a greater distance away because the accessory flash can output more light.) The drawback



Figure 5-22: The Dreaded red-eyell

This image was taken with a competitor’s camera with the red-eye reduction feature turned off. (Ahhh... I simply *must* return to Mars someday!)

to this approach, of course, is the added expense of a flash and that you need to carry it with you everywhere you go.

The other way to vanquish red-eye is to fool the eye into thinking that it's bright outside. When it's bright outside (or when the brain thinks it is), then the eye's pupil closes down, leaving a much smaller opening for the light from the flash to come in (hence, a smaller opening for the reflection to get out of, as well). This is the principle behind Red-Eye reduction – the built-in flash sends out a few “pre-flashes” which your nervous system responds to and *very quickly* closes the pupil, then the final flash illuminates the picture. To activate Red-Eye Reduction mode, go to **MENU → 2 → RED EYE → ON**.

The drawback of Red-Eye Reduction mode is that it takes a little longer to shoot your picture. The flash must go off no less than THREE times before the image is captured, and the whole process takes almost a half second. Why three times, you ask?

- 1) The first time is to trigger your eye's pupils to close down.
- 2) The second (and sometimes third) one is a “pre-flash” – the camera sends out a test flash burst of a known amount of light, and measures the amount of light reflected back into the camera.
- 3) It then does some calculations (incorporating the focusing distance to tell the camera where the subject is) and then it spits out the final large flash burst which illuminates the subject while the picture is taken.

Turning Red-Eye Reduction OFF reduces this process to only two flashes (steps 2 and 3).



Figure 5-23: The Sony Accessory flashes HVL-36AM and HVL-56AM, which are identical to the Minolta Flashes 3600HS-D and 5600HS-D.

4) Rear Sync Flash

Rear Sync is an indispensable tool for certain kinds of shots where ambient light (with longish shutter speeds) is combined with flash. The classic image is a person running in a marathon, with a “ghost” trail behind them. In order to explain what it does, let me first explain the mechanics of taking a flash picture with long shutter speeds:

A camera's shutter is comprised of two pieces (often called “curtains”): The one that covers the sensor before exposure, and a 2nd one that moves in and covers the sensor again after exposure. During normal flash photography, the first (“front”) shutter curtain moves away, exposing the sensor; the flash fires, and then the second (“rear”) shutter curtain closes, cutting off all light to the sensor. Normally, all of this happens within 1/125th of a second or so.

But, what if you kept the shutter open for several seconds and you wanted to use the flash? When should the flash fire – at the beginning of



Figure 5-24: Examples of Normal (left) and Rear (right) Flash Sync

The idea is that you can control leading or trailing light when you're using both long shutter speeds (ambient) and flash on a moving subject. Rear sync (right) allows the pedestrian's trail to show up behind him, whereas with normal settings (left) the trail appears *in front of him!* Who wants *that*? For this shot, the shutter speed was set to 1.5 seconds to capture the motion, and the flash still went off to freeze the subject – hence we have both a blur and a “frozen” subject all in the same shot.

the exposure (coinciding with the front shutter curtain), or at the end, coinciding with the rear curtain? Most cameras will only fire the flash at the beginning of the exposure. The Rear-Sync function tells the camera to select the second option: fire the flash near the end of the exposure, at a time when the rear shutter curtain on a film-based camera would close. When would you want to do this? See **Figure 5-24**.



Figure 5-25: Invoking the Rear Sync function.

You can invoke Rear Sync Flash via the Flash Function Dial (See **Figure 5-25**).

5) Wireless Flash

Wireless Mode was designed around this simple concept: flash pictures can often look much more dramatic and professional if the light is coming from someplace OTHER than where the camera is. In the old days, having a flash work properly while off the camera involved a lot of hocus-pocus and technical mumbo-jumbo. In the early 1990s, Minolta developed a brilliant system where the flash could be removed from the camera and placed elsewhere in the room, pointing toward your subject, and firing automatically as if it were still attached to the top of your camera!! (See **Figure 5-26**.) Combined with the Super SteadyShot feature, the Wireless Flash feature makes your Sony camera quite a unique bird in the vast flock of look-alike digital camera competitors!

How does it work? When in Wireless mode (**Figure 5-27**), the built-in flash doesn't even attempt to illuminate the subject. Instead, it sends out tiny little bursts of light of negligible brightness – kind of like a Morse code – to tell other flashes (which are sitting off-camera), when to turn on and off.

This is such an important and useful feature that I have actually dedicated an entire chapter to this subject. Please see Chapter 7 to understand the realm of possibilities that this innovation enables you.

Flash Modes 6 and 7 represent the two choices presented to you in the **MENU → 2 → Flash Control** menu.



Figure 5-27: Invoking the Wireless Flash function.



Figure 5-26: Sample of Wireless Flash image. With the flash off-camera, you can produce shadows giving dramatic results!

6) and 7) ADI and Pre-Flash TTL

These two are very similar, so before I talk about the differences let's briefly discuss *how the camera decides on the amount of light to output* for each shot it takes.

Once the camera has focused on the subject and the shutter release button has been pressed, the camera's flash first outputs a very low-level "pre-flash" and then measures how much light bounces off the subject and back to the camera. The camera uses this measurement to calculate the proper amount of light to output, and then a fraction of a second later, it dispenses just the right amount of light, based on the measurements of the pre-flash. Since the pre-flash light must pass through the lens before it can be measured, this method is referred to as "TTL" (for "Through The Lens"). The great advantage of TTL is that it will calculate the right exposure regardless of whether you have filters in front of the lens, or you are zoomed in all the way (changing the maximum f/stop of the lens), or you are bouncing the flash off the ceiling. And for many years, TTL was the best way to do automatic flash in the 35mm film camera world. (You can invoke TTL mode by **MENU → 2 → Flash Control → Pre-Flash TTL**.)

TTL will do an outstanding job of giving you perfectly-exposed pictures in all situations *EXCEPT* those where the flash happens to bounce off a mirror or window in the background. In cases like this, the camera measures the light that is bouncing back off of the mirror, and says, "Whoa!! That's WAY too much light coming in! I'd better put out *much* less light in order for me to expose this scene correctly!"



Figure 5-28: ADI at work.

ADI helps to expose the subject properly in situations where the background is too reflective.

Therefore, in situations where you were using a flash and a window or mirror was in the background, the subject would invariably come out underexposed.

This is why ADI (Advanced Distance Integration) was invented. ADI works exactly like TTL, except it also takes the distance the lens is focused at into account when calculating the flash exposure. By incorporating the distance information into the intensity-calculating algorithm, you can have the best of both worlds – the accuracy of TTL without its Achilles' heel. (See examples in **Figure 5-28** and **Figure 5-29**.)

In order for ADI to work, however, you must use one of the newer breed of autofocus lenses made after the year 2000 that have the “D” (Distance Encoding) designation. Mounting an older lens onto the camera will automatically default the flash mode to TTL.



Figure 5-29: ADI at work, Part II. The left was shot using TTL; the right using ADI. (I will admit that most people should never shoot framed items under glass using a direct, onboard flash... but it sure does show off what the feature does!

Drive modes

The term “Drive” harkens back to the days of film cameras and “motor drive”, a motor that attached to the bottom of the camera and automatically advanced the film. In the 1960s it was a favorite for sports photographers. Fortunately, your Sony DSLR has similar features for rapidly capturing a sequence of images.



Figure 5-30: The drive mode button and screen.

To select the drive mode on the A100, press the Drive Mode button (**Figure 5-30**) which displays the drive mode screen. You can then use the LEFT and RIGHT cursor buttons (or the front control dial) to select from the following options: In some cases, once you choose a drive mode you can tweak its characteristics by using the UP and DOWN cursor buttons. The various modes are described below.

Single-Frame Mode



This is the most basic mode, which works like a point-and-shoot does. Single Frame will take only one picture, no matter how long your finger stays on the shutter release button.

Continuous Advance Mode



You can think of “continuous advance” as a modern-day equivalent of a motor drive – if you hold the shutter release button down, the camera will continue to take picture after picture after picture as fast as it can until the memory card is full. Continuous Advance mode will capture images as fast as 3 pictures per second for as long as there is room in the camera’s memory card. (Well, that’s not entirely true... If you’re shooting in RAW mode (Chapter 8), it will take between 3 and 6 images before having to pause to dump its buffer onto the memory card, depending upon the speed of your memory card.) If autofocus is enabled, it will autofocus before each image.

Bracketing



In a hurry? No time to futz around with making sure the exposure is dead-on accurate in a tricky lighting situation? Have no fear! The Bracketing function was designed just for you!

The Bracketing function automatically takes a sequence of 3 shots whose exposure is tweaked by the UP and DOWN arrow keys to be either 1/3 of a stop (“0.3 EV”), or 2/3 of a stop (“0.7 EV”). (A “stop” means “twice as much light”.) In the days of shooting slide film this was an important function, but in the era of digital (where you can examine the results immediately afterward) it’s most useful only when you’re in a hurry and don’t have time to review your images for exposure accuracy. (See **Figure 5-31.**)

While in bracketing mode, when you take three pictures in a row, the first will be exposed according to the camera’s recommendation; the second will be underexposed by the amount chosen, and the third will be overexposed by the amount chosen. Bracketing mode remains in effect until you turn it off.



Figure 5-31: Exposure Bracketing Example.

Automatic bracketing can help you make sure you have the best exposure when you don't have a lot of time.

You'll notice that the A100 has TWO bracketing modes – one labeled “S” (Single) and the other labeled “C” (Continuous). For the “Single”, you must depress the shutter release button three separate times in order to capture the three bracketed exposures. For Continuous, press *and hold* the shutter release button, and the camera will take three bracketed pictures as described above.

White Balance Bracketing



Just as it's tough to assess whether the exposure is perfect out in the field (driving the need for exposure bracketing), so too can you sometimes be unsure about the Auto White Balance setting. White Balance Bracketing will take ONE image and store it three different ways: “Normal” (the way the camera would normally shoot the image), a little on the blue side, and a little on the yellow side, as shown in **Figure 5-32**.



Figure 5-32: White Balance Bracketing Examples. Top row is “Low bracketing” (Normal → blueish → yellowish]; and the bottom row is “High Bracketing”. The difference is “High bracketing” will shift the color twice as much in either direction.

Advanced Topics: The Histogram Display

Brightness range, sensors, and the human eye

Have you ever seen something which looked *really cool*, only to take a picture of it and have it come out looking darker (*much* darker) and ‘muddier’ than the way you remembered it? Why wouldn’t the picture look *exactly* the way you remembered seeing it?

It turns out that the answer to this question is far from easy. But the short answer is: *cameras (film or digital) see light differently from the way the human eye and brain do.*

To understand this difference, have a look at the picture in **Figure 5-33**. When I took this picture, the scene didn’t look like this to the naked eye. I could see the skateboarders quite plainly, right down to the color of their clothes and the stickers on their skateboards. But *film and digital cameras cannot see the same range of light as the human eye can*. In the vast majority of cases you can either capture the sky, or the foreground, but not both, as illustrated in **Figure 5-34**.



Figure 5-33 Limited Brightness Range can lead to artistic images. You can create silhouettes on purpose by exposing for the sky (via AEL and Spot metering) and then recompose, focus, and shoot.

So for the skateboarding silhouette above, I chose to expose for the sky, intentionally leaving the subject to be rendered as a black outline.

Figure 5-35 gives a good comparison of the range of sensitivity of the human eye, color negative film, and digital cameras. In the figure, a “stop” means “a factor of two” in light intensity. So when it says a digital sensor can sense a range of brightness of 8 stops, it means that the brightest part of the picture is no more than $2^8 = 256$ times brighter than the darkest part of the picture. Put another way, if you were using the spot meter feature of the camera and you were to measure the brightest and darkest parts of your scene, and the brightest part reads $1/1,000^{\text{th}}$ of a second, then the darkest part must read no less than $1/4$ of a second (8 stops away) for everything to be visible.



Figure 5-34 A real-world example. Unlike the human eye, with digital cameras you can either capture the sky (left) or the subject (right), but not both.

Different Devices can “see” different ranges of light

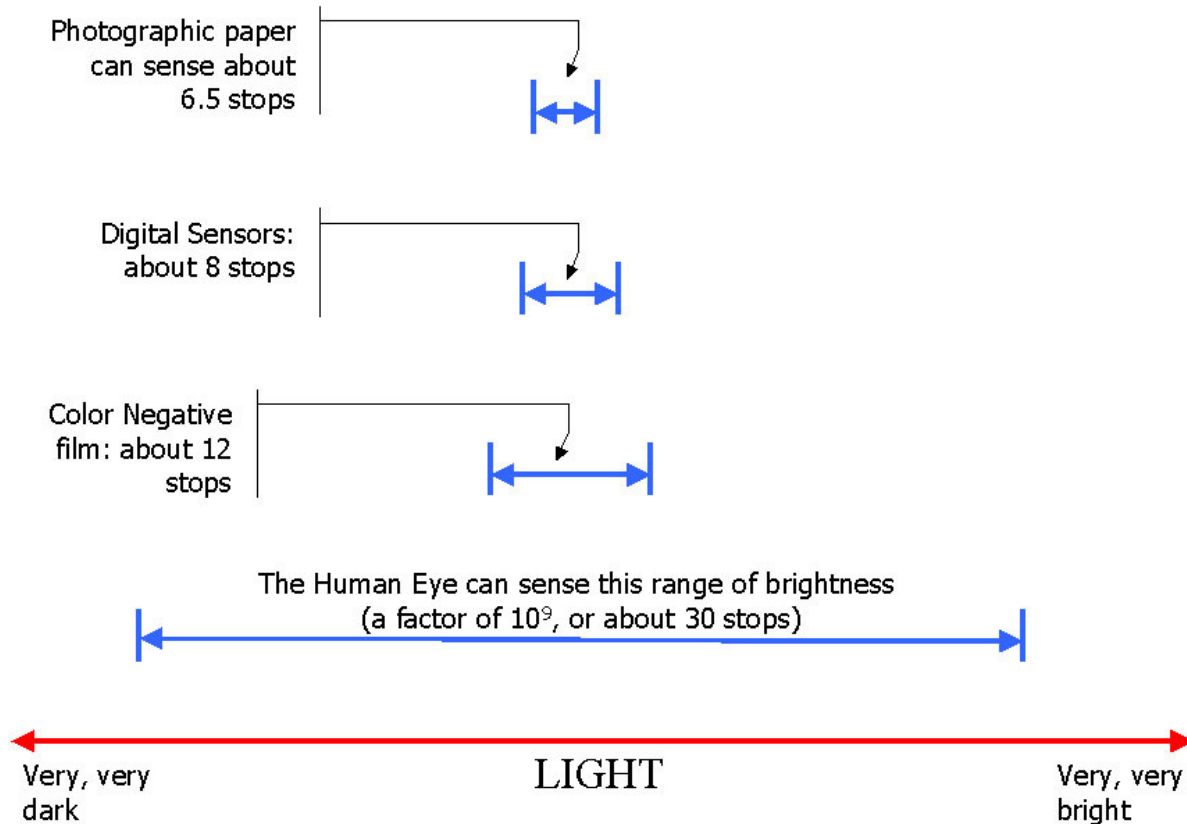


Figure 5-35: The light-capturing ability of several different sensors.

This is a *really, really* important concept to understand. Your eye can see a greater brightness range than can film or digital. Film or digital can see a greater brightness range than the camera's LCD. This means *when you look at a scene using the LCD, you're not seeing all the detail that the digital sensor can capture!* In reality, you're seeing about 90% of the light range, and for the vast majority of shots, this is great and useful and wonderful.

Once you understand the important concept of reduced brightness sensitivity range, it becomes easy to understand why Fill Flash is sometimes used to make the subject look good on film (or digital) even though they look perfectly good to the unaided eye. It also explains why the motion picture industry uses gigantic studio lights in their productions, only to have the scene look perfectly normal when you see it in the theatre. *It is because for an image to look normal, the brightest part of your scene must be no more than 8 stops brighter than the darkest part of your scene.* If it is more than 8 stops – that is, if the brightest part of your picture is more than 8 stops brighter than the darkest part of your picture, the camera will not be able to capture it all, and some information will be lost – perhaps areas in the darkest part will become deep black, or the lightest part will “blow out” and be so white that you can't make out any detail.

In the previous silhouetted skateboarder image, the range of light in the scene was indeed greater than 8 stops, and the information in the darker parts (where the skateboarders were) was lost, resulting in the darker parts looking black. (So, sometimes the limited range of a sensor can be used for artistic purposes. But far more often it results in frustration because the camera was not able to capture what you saw.)

In the days of film, such loss of information usually came as a surprise to the photographer after the developed film came back. But, at least with digital cameras *you can get a good idea of whether or not the camera captured the brightest and darkest parts of your scene.*

Use the Histogram for a finer degree of control

So, all of the above was a prelude to the Histogram function. The histogram display simply shows you where the brightness in your image “falls” within the 8-stop range. It is useful when you are shooting subjects that are predominantly white (like a bride in a wedding dress) or black (like portraits of black cats on black backgrounds), and you need to know if the sensor is capturing the detail that the LCD cannot show you. The histogram shows you the range of brightness values in your image, rearranged in order, with the most frequently-occurring brightnesses being taller.

Figure 5-36 shows an illustration of how histograms relate to the scene being captured. Let’s say that the collection of black, white, and grey boxes in the upper-left-hand corner represent the pixels of your (very low-resolution) digital camera. The histogram simply re-arranges the pixels in order of ascending brightness; the brightest to the right and the darkest to the left. Pixels with the same brightness value get “stacked” on top of each other. The resulting graph shows the brightness distribution of the image; where the brightest parts and darkest parts fall within the camera’s sensitivity range.

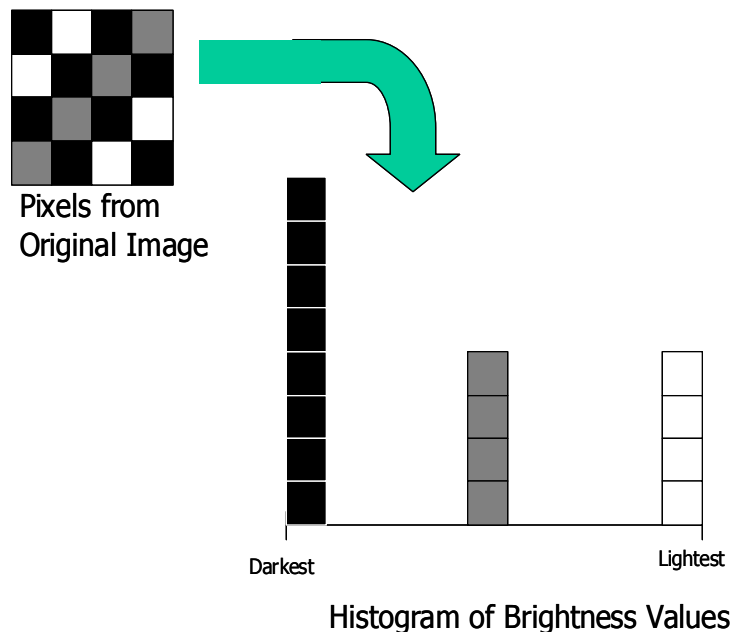


Figure 5-36: Simplified view of how histograms work.

Notice that the examples used only pixels that were black, white, or shades of grey. This mimics how the camera does it, because when producing a histogram, NO COLOR INFORMATION is taken into account. Instead, the camera's computer converts the image to Black-and-White first, leaving only brightness information from which the histogram is produced.

Okay, so how do you use this information? Remember that the right edge of the histogram represents *the brightest value the sensor can capture*, and the left edge represents *the darkest value the sensor can capture*. It is important that the tallest parts of the graph (representing the dominant shades in your image) are not clumped up at the left-edge or right-edge; for if they are, it means that the brightness level of these pictures is exceeding the sensor's brightness range. It's also important to remember that *there is no such thing as a standard-looking histogram* for all pictures – you use the histogram to make sure that the brightnesses in the image fall where you want them to fall for the kind of image YOU intend to create.

You can view an image's histogram while it is still in the camera. While in Playback mode, hit the UP cursor button to get the histogram playback screen (**Figure 5-37**). Hit the UP button again to revert to full-screen playback mode.

Let's start with some simple examples:

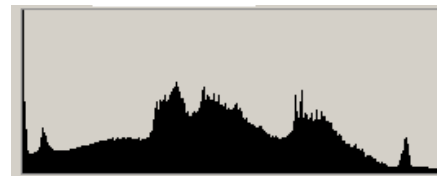


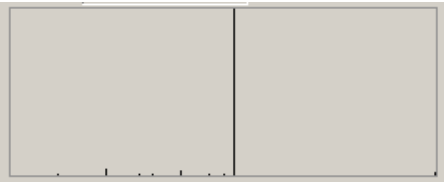
Figure 5-37: Histogram Playback mode

Here's a picture of a Cuban boy against a dark-ish background. Since there is more dark than bright in the picture, this is reflected in the histogram, which shows more dark pixels than light ones. Notice that the blacks are not SO black that they bump up against the left edge – this is perfect for this shot. Black, but not TOO black.



Here's a truly average scene, with brightnesses spread out pretty evenly across the horizontal axis. The black spike you see near the left-hand edge represents the black in the road sign. As you can see, the tall spike means there are more black pixels than of any other single color. (There are many different shades of blue, which is why there's no large spike in the center.) Here it is OK if the blacks are outside the range,

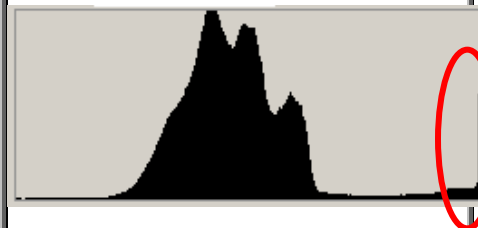


for we don't need to see detail in the black part of the sign.		
Here's a picture of a grey piece of paper. Here the histogram looks exactly as you expect it would – all grey pixels stacked up high, with no lighter or darker pixels anywhere (i.e., nothing to the left or the right of the spike).		
Here is an image comprised entirely of black, white, and grey. Here, we expect to see 3 spikes: Black on the left, white on the right, and grey in the middle.		

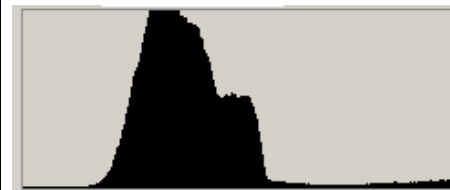
Oh no! I just took this picture, and the camera's LCD screen makes the white building look washed out and overexposed! Is it?? Let me check the histogram.... WHEW! According to the graph on the right, the vast majority of the white in the image is within range. Only a tiny white spike on the rightmost edge – represented by the whitest part of the clouds above – is “blown out”, which for this picture is acceptable. (How do I know it's the clouds and not the building? Because in Histogram Playback view, the “blown out” part of the clouds blinks every ¼ second.)



Another real-world situation. I had just taken the picture of this bird, and I couldn't tell by looking at the LCD screen whether the whites were blown out or not. A quick histogram check indicated that they were indeed blown out! (See circled area – plus, the blown-out parts of the image were blinking in Histogram view.)



I immediately set the camera to underexpose by $\frac{1}{2}$ stop and shot again. All of the histogram shifted to the left (thus the entire picture got darker), and now the blown-out portion is safely captured within the camera's available dynamic range. Hooray!



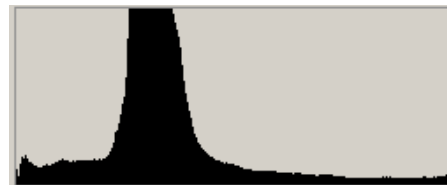
Luckily the bird was still there when I took the 2nd shot. It's situations like these for which auto bracketing was invented – take several at different exposures NOW; I'll edit at the computer

later.

It's hard to see the difference in these tiny thumbnails, but if I were to make an enlargement of this picture, the lack of detail in the bird's feathers would definitely have been noticeable!

Here's an example using a black subject on a black background. As you can see, the large mass in the histogram shows that the camera opted for a dark grey; whereas I wanted black. (Plus, some of the whites are being blown out on the right side.) So...

So I set exposure compensation to -1 stop. A little better, but some highlights are still being blown out (as you can see by the right-hand edge, circled).



I set exposure compensation to -1.7. That's better!



Remember, there is no such thing as an average-looking or "correct" histogram shape – each will be different and depends entirely on the kind of image you were looking to create.

For this picture, it was perfectly OK to have some blacks be so dark that there's no detail, as long as the highlights on the face were captured properly. As you can see in the histogram, the face details were captured just fine and there's no "blow out" of the highlights.



TIP: There is a quick and easy way to tell if your image contains any blown-out highlights or too-dark shadows. When you playback the image in histogram mode (by pressing the up-arrow key during playback), the parts of the exposure that are “off the scale” will blink. A **VERY** useful feature!!

Dynamic Range Optimization

Remember how, in the previous section, it was made abundantly clear that the human eye and brain see things very differently than does a digital camera? Well, the folks at Sony understand this as well, and in an attempt to equalize things (that is, make pictures seem a little bit more like how we remember seeing them), they developed the Dynamic Range Optimization function (**Figure 5-38**). With DRO, in certain circumstances, the algorithms in the BIONZ image processing chip will examine the brightness range of the image and, if it feels the image will benefit, will attempt to lighten some of the shadows. **Figure 5-39** shows two examples where DRO has made a difference.



Figure 5-38: Invoking one of two Dynamic Range Optimization (DRO) functions.



(DRO OFF)



DRO



DRO+



(DRO OFF)



DRO



DRO+

Figure 5-39: Two examples of the Dynamic Range Optimization function, which strives to brighten the shadows in certain types of situations. In the first example, shadows under the bridge are brightened; and in the second example, two backlit Ukulele players are brightened to look a little more like how they looked in person. I keep DRO+ on all the time.

The A100 actually has TWO different DRO modes, which work in completely different ways. The first setting, “DRO”, will examine the 40 multi-segment metering points associated with the image, and then compare them against a huge library of 400,000 metering and gamma curve combinations (Sony calls gamma curves “Tone Curves”, and the concept is discussed on page 319 in Chapter 9). It then applies a test-match gamma curve to the entire image. This method is actually quite fast – so fast, in fact, that it doesn’t slow the camera down at all. You can continuously shoot at 3 frames per second until your memory card fills up without having to wait for DRO processing.

The second setting, DRO+, is much more sophisticated, and takes a little more time (about 0.5 seconds per shot), but tends to produce better results. With DRO+, after the picture has been taken, the camera evaluates and maps out every light and dark area of the image, and applies a local gamma curve to each individual area. Considering all the computation involved and the large 10 MP sensor, 0.5 seconds is actually quite an achievement.

Like the Super SteadyShot feature, Dynamic Range Optimization is not a panacea. The following should be kept in mind when considering using the DRO function:

- It won’t have a visible effect on most images. It only kicks in under certain circumstances, where there are strong black and strong whites and a lot of detail (i.e., not blown out) in each.
- It doesn’t actually increase the dynamic range of the sensor; rather it manipulates the information that has been captured and tries to make it look more like how the human eye saw it.
- Even when turned on, DRO and DRO+ won’t have a visible effect on most images.
- Colors! If you’re a stickler for color matching and super accurate colors, DRO and DRO+ may not be for you. Curve manipulation is famous for slightly changing the brightness and hue of colors. In addition, with the DRO+ function, colors will be shifted slightly relative to each other, exacerbating the color-altering characteristic.

- DRO and DRO+ do not operate when you're shooting RAW or RAW + JPG. (RAW mode is covered in Chapter 8.)

Color / DEC: In-Camera Image-Tweaking settings

The Alpha 100 has a “Digital Effects” (“DEC”) and color space menu which allows you to change the color intensity (also called *saturation*), contrast (how strong the blacks and whites are), and sharpness. The degree of change you can invoke by these settings is very small (see comparison shots in the next sections), however you can achieve noticeable differences by combining several of these variables. I give an example of such a combination after the settings are demonstrated. Note that these settings only affect pictures taken in P, A, S, or M exposure modes.

To change any of the settings described in this section, set the Function Dial to DEC, and press the center FN button. You will see a menu not unlike that in **Figure 5-40**.

When you enter the Color / DEC screen, you see a display that allows you to tweak four settings from a range of -2 to +2. Let's discuss what each of the options on this screen mean.



Figure 5-40 The Digital Effects screens control color space, contrast, sharpness, and color intensity (saturation).

Color Space (Natural, Vivid, and AdobeRGB)

Have you ever seen an older photographer with several camera bodies around his neck? The old pros used to carry multiple bodies with them because they never knew what kind of light they would encounter; and so sometimes one camera body would have high-speed film and the other low-speed film; or one camera would have slides and the other negative film (for prints). Multiple bodies were used because it was bothersome and time-consuming to change film in the middle of a roll.

Once again, digital cameras prove to be far more convenient by completely removing the need for multiple bodies. With the A100, you can switch between high- and low-ISO speed, or between muted colors or intense colors, and then right back again after you've taken your shot. Want slides? Hook up an LCD projector to your laptop. Want prints? Take your Compact Flash card to your one-hour photo place. You can do it all with digital cameras.

So what is a color space? It's a big topic to go into for an introductory book, but in a nutshell: Just as the brightness range in the real world is much larger than can be captured by a sensor, so too is the real range of colors significantly larger than can accurately be reproduced by modern printing presses, inkjet printers, or computer monitors. And so, the concept of color space (or "gamut") was

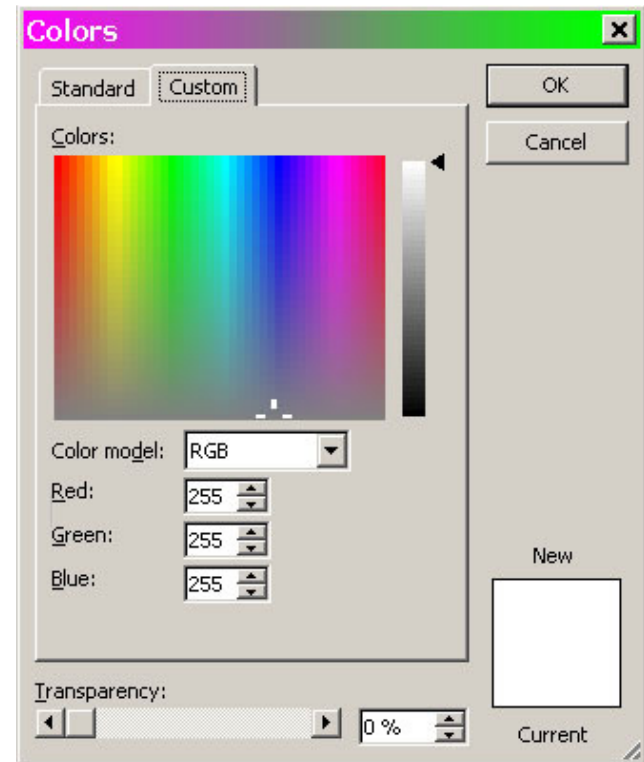


Figure 5-41: An example of a color space: All the possible colors that can be represented by a program or printer.

invented – a finite set of colors which the printing mechanism has at its disposal to render the image. You can see a good example of a color space for a computer screen (courtesy Microsoft Word) in **Figure 5-41**. As you might expect, different printers (and different monitors, and different digital cameras) do not always share the same color space capabilities – some might be stronger on greens, some might have orange-ish reds, etc. Early in the development of digital imaging several color spaces were developed and “agreed upon” by industry players in order to have some hopes of interoperability. The first of these, sRGB, has been adopted by nearly everybody, including Sony, who has labeled it their “Natural” color space.

There is also a second setting called “Vivid” which is also sRGB. How can they both be sRGB and still be different? Here’s how: When Vivid mode is selected, the camera first enhances the colors (a little stronger than that for “Natural”, and THEN assigns the enhanced colors to the sRGB color space. The result as far as you’re concerned is an image whose colors are a little more enhanced, not unlike the results you get when you select greater saturation in the Digital Effects menu.

Finally, there is AdobeRGB color mode. This is by far the most difficult to explain (a topic for an entire book!), but at the risk of oversimplifying the concept, it is a much larger color space than sRGB, and is favored by professional graphic artists who have \$10,000 printers. If you choose to shoot in AdobeRGB format you will have to convert back to sRGB in an external program editor like Photoshop if you want to share the file electronically with non-professionals, or send it to most 1-hour photo printers. In addition, AdobeRGB almost always requires additional post-processing on the computer, and so the benefits of shooting in this mode for beginners are difficult to articulate (probably because there are none!). It is best to stick with either Natural or Vivid color spaces, and you can see a comparison of all 3 color modes in **Figure 5-42**.



Natural

Vivid

EmbedAdobeRGB (after conversion)

Figure 5-42: Color modes: Natural, Vivid, and AdobeRGB. The differences can be very subtle – try it for yourself!

TIP: If you choose to shoot in AdobeRGB mode, you'll notice that the file names begin with “_DSC”, whereas with any other color mode the file names begin with “DSC0”. This is a visual cue to the folks in charge of post-processing images (in the unlikely event that that person is not you) that they still need to be tweaked into a more universally accepted color space so that they can be easily shared with others.

Portrait, Landscape, Sunset, Night View, and B&W modes

In addition to the three color modes described above, the top line of the DEC menu also allows you to choose the following “color modes”, which are identically named for their corresponding scene selection modes:

Portrait	Provides slightly warmer skin tones.
Landscape	A little more saturated and a little more contrast.
Sunset	More reds.
Night View	??? (I have no idea what this does. Tests between this and NORMAL color mode produce identical results.)
B&W	Records the picture as (what else?) Black and White (See Figure 5-43)

TIP 1: I have found that I'm able to get very pleasing B&W shots by setting the Camera's Contrast to +2

TIP 2: B&W mode can sometimes save a shot which would otherwise be substandard because of poor light. For example, Figure 5-43 is a shot of a Chinese boy on his father's shoulders. The child is backlit, with little direct light hitting the boy's face. This light is just awful, but when shot in B&W mode the poor lighting hardly gets noticed.





Figure 5-43: B&W can save a shot that has poor lighting. Also, most non-photographers tend to regard Black-and-white shots as being more “artistic”.



Contrast Setting

The second “Bar” on the Color / DEC menu screen adjusts the contrast. Contrast is a difficult thing to describe, but you know instantly if your pictures don’t have enough of it. Basically it is “how white are the whites, and how black are the blacks?” If you are going to have your pictures processed at a 1-hour photo lab, then they almost always adjust the contrast for you and there should be no need to change this setting. **Figure 5-44** gives examples.



-2



-1



0



+1



+2

Figure 5-44 The Contrast setting from -2 to +2.

Saturation Setting

This setting increases or decreases the intensity of the colors, adjustable from -2 to $+2$. See **Figure 5-45** for examples.

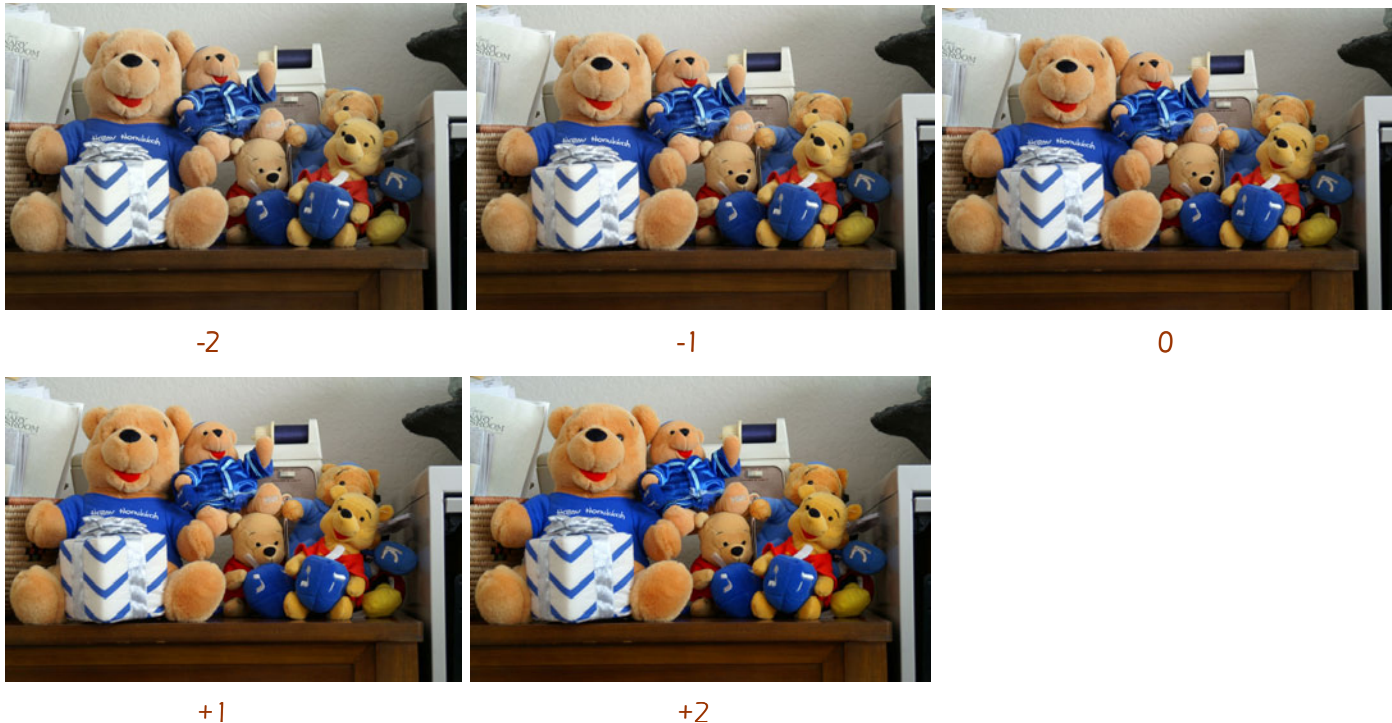


Figure 5-45 The Saturation setting from -2 to $+2$.

Sharpness Setting

If you think all these comparison shots so far look alike, just wait until you see the comparison with the sharpness settings in **Figure 5-46!** To make the differences visible, a small portion of the images presented for comparison have been greatly enlarged. (See next page.)



The yellow square shows the zoom area



-2



-1



+0



+1



+2

Figure 5-46 The Sharpness setting from -2 to +2.

Combining Settings

Like some of the digital effects settings, it may be extremely difficult to see the difference using these examples, as both the sample images and the differences between them are rather small. But individual settings can be combined with others to yield noticeable differences. For example, the following combination of settings for shots with real “Punch!”:

Color Mode: Vivid

Saturation: +1

Contrast: +1

Sharpness: +1

[Note: In the last book I showed a ‘before’ and ‘after’ shot using these settings; however with the A100 it was difficult to find subjects for which a combination of settings actually made things look better. Of all the DSLRs I’ve owned in the past, the A100 simply creates the best images “out of the box” using standard settings!]

Zone Matching

Let's wrap up this chapter with an innovative feature with a confusing name. Let's say you're a wedding photographer who has mastered the difficult task of capturing white dresses and black tuxes on film. Let's further say that you're transitioning to digital, have bought a Sony DSLR, and have read the part of this chapter that deals with the narrow dynamic range of sensors as compared to the human eye or even film. "Isn't there ANY trick I can use to help me capture the detail in the whites or the blacks like I could with film?", you would probably say. "Yes", comes the answer, and word has it that this solution out-performs similar attempts by competitors to solve this very problem.

Have a look at the images in **Figure 5-47**. This is an image with a lot of whites that have been "blown out" – the sensor was not able to capture it all, and so the whites go off the scale. Setting Zone



Figure 5-47: Examples of Zone Matching on "High"

matching to “High” invokes some in-camera trickery that allows you to capture these details in the highlights without affecting the rest of the image.

Technically, Zone Matching (High) does two things: 1) Underexposes a little so the highlights don’t blow out, and 2) adjusts the curve (similar to what one might do in Photoshop or Picture Motion Browser; see Chapter 9) so that the original midtones and shadows are preserved. This is not at all the same thing as Dynamic Range Optimization (DRO)..

Figure 5-48 shows a similar example where Zone Matching (low) can help increase the detail in the shadows without affecting the rest of the picture.

You can invoke Zone Matching by going into ISO mode (via the Function Dial) and choosing either Lo 80 or Hi200. To go back to “regular” exposure modes and cancel Zone Matching, simply select another ISO speed. So how does this feature compare with, say, shooting in RAW mode (see Chapter 8) and



Figure 5-48 Examples of a dark image shot on Auto (left) and with Zone Matching on “Low” (right). Zone matching allows you to capture more detail in shadows than would normally be possible on “automatic”..

tweaking things yourself on the computer? The results will probably be just as good. Just like the A100's B&W shooting mode, the Zone Matching feature is designed to offer a way to do something that normally would require time-consuming post-processing in-camera for the photographer's convenience. (Want the best of both worlds? Shoot RAW + JPG with zone matching enabled!)



My Personal Camera Settings

Since publishing my previous books, I have received emails from many, many people asking “Where is a good starting point for this overwhelming number of camera settings?” And although I have tried to outline the whys and wherefores of how to use these settings throughout the book, I also know how useful it is for a newcomer to just be told “Here, do it like this!”

And so, below is my personal list of camera settings, which I shoot with most of the time (unless a special situation calls for changing a parameter).

Menu Settings

Item	Value	Comments
Image Size	L: 10M	Record as much detail as you can. If I want smaller images, I'll throw pixels away later when I get back to my computer.
Quality	RAW + JPG ("RAW+")	If I'm just shooting snapshots for myself which I know will not be considered works of art, I'll often just use FINE mode instead.
Inst. Playback	10 Seconds	Anything shorter makes it tough to show to others without pressing more buttons. If I ever need it to be shorter, I just press the shutter release button halfway to go back to shooting.
Noise Reductn <i>[sic]</i>	ON	This only kicks in for exposures > 1 second.

Eye-start AF	OFF	Eye-start is a great feature, and when I'm shooting sports, candid, or weddings I keep it on because it starts the camera focusing as soon as you bring it up to your eye. In situations where speed isn't that important I keep it OFF, since it has a tendency to start autofocus whenever ANYTHING comes into range of the IR eyepiece sensor. This leads to unintended focusing motor activity, often at times when the focusing ring is not free to move.
Recording Menu 2		
Red-Eye	OFF	It greatly increases shutter lag. Better to either use an external flash or fix it in image editing software later.
Flash Control	Pre-Flash TTL	I use flash diffusers a lot (see Chapter 7), and doing so with ADI ON can cause incorrect flash exposures.
Flash Default	Fill-Flash	This way, when you pull up on the pop-up flash, it ALWAYS fires.
Bracket Order	0 → - → +	Unjustifiable Personal Preference
Playback Menu 1		
Index Format	4 Images	I can't really see anything smaller than this. ☺
Custom Menu 1		
Priority Setup	RP	Release Priority – take the picture when I say so!! (Not when the camera thinks it's in focus!) (The

		opposite setting, AF priority, won't take the picture until the camera thinks the subject is in focus.)
FocusHoldButt.	Focus Hold	Some Minolta lenses from the mid-90's had an electronic button mounted on the side of the barrel. This feature tells the camera what you'd like it to do when you press it. This setting means "Lock focus when I press this button."
AEL Button	 AE Toggle	With this setting, pressing the AE Lock button automatically puts the camera into Spot Metering mode, and <i>holds the reading</i> until the AE Lock button is pressed again. I don't have to hold that little button down! Very useful!
Ctrl Dial Set	Shutter Speed	In Program Shift mode the value doesn't matter; but when you're in Manual Exposure mode you can specify whether the front control dial adjusts the shutter speed (selected) or the f/stop. (The other parameter, by the way, can be adjusted by holding the +/- button and rotating the front control wheel.)
Exp. Comp. Set (Exposure Compensation Set)	Ambient Only	If I wanted to control the amount of flash, I'd use the flash compensation button. This way I can control each variable separately.
AF Illuminator	ON	This affects two separate behaviors: ✓ If the pop-up flash is up, it bursts several times to give the AF sensors some light. ✓ If the external flash is mounted to the hot

		shoe, the near-infrared LED's on the flash's front will illuminate.
Custom Menu 2		
Shutter Lock (no memory card)	OFF	I know it makes no sense to want to take a picture with no memory card inserted... but hey, they gave me the option!
Shutter Lock (no lens)	OFF	I can still take a picture when attaching exotic lenses to the camera (like a telescope).
AF Area Setup	0.3 sec.	Unjustifiable Personal preference
Monitor Display	Automatic	Turning the rear LCD off when I'm looking through the viewfinder saves battery power.
Rec. Display	Horizontal	I don't care for the information display to appear vertically when I shoot in Portrait (vertical) mode.
Play. Display	Auto Rotate	Normally I don't like it when the camera shows vertical images as vertical, as it's harder to see the detail at a glance. But setting this to Man. Rotate means that the orientation information is NOT recorded in the image when the picture is taken. (Why in the world did they do THAT?) So since I'd rather have the orientation info in my EXIF information, I keep this set to AUTO ROTATE..
Setup Menu 1		

LCD Brightness	+0	Making the LCD brighter actually makes correctly-exposed images look washed-out when reviewing them. So I keep it at the factory setting of +0.
Transfer Mode	Mass Storage	I don't plug my camera into either my computer or a PICTBridge-compliant printer, so this setting doesn't matter to me.
Video Output	NTSC	This is the North American video standard. Europeans should use PAL.
Audio Signals	OFF	Unjustifiable Personal Preference
Language	English	Justifiable Personal Preference ☺
Setup Menu 2		
File # Memory	ON	If this were set to OFF, every time I put in a blank card the file name sequence would go back to DSC0001. That causes problems later on when I'm looking for specific image numbers.
Folder Name	Std. Form	The other setting, "Date Form", creates a new folder for every day you shoot. This is an Unjustifiable Personal Preference.
Setup Menu 3		
LCD Backlight	5 seconds	Unjustifiable Personal Preference
Power Save	3 minutes	A nice balance between usability and power saving.

MenuSec. Memory	OFF	I can navigate menus faster if I know the starting point each time. Setting this to ON has the camera remember your last menu page, and takes you back there next time you press MENU. Your preferences may vary.
Delete Conf.	No	Saves you from having to use the cursor to select “Yes” every time you want to delete an image.

Function Dial Settings

Metering Mode	Multi-segment	Generally gives more accurate exposures under non-ideal situations.
Flash		
Flash Mode	Fill-Flash	(Why are there two settings for Fill Flash on two separate menus?)
Focus		
AF Area	Spot AF area	I have always used the “Focus in the center, lock focus, and recompose” method for more than 20 years. I can work much faster this way, and my shots have always been sharp.
AF Mode	Single-Shot AF	If I were shooting sports, I’d change this to AF-C (Continuous); but for subjects that stay still AF-S

		(Single) tends to be more accurate.
ISO	100	If I really am lazy, I'd set it to AUTO; otherwise leaving it on 100 helps ensure the highest possible quality.
White Balance Mode	AWB	Auto White Balance. If I'm shooting under incandescent light (i.e., light bulbs), I'll manually change it to Tungsten (because it provides better correction than AWB does).
D-Range Optimizer	D-R+	I don't shoot sports, so the slightly greater processing time doesn't bother me. Keep in mind that this setting only kicks in when you're NOT shooting RAW.
Color / DEC	Standard	I prefer to have all of my image tweaking (including color rendering) done on the computer and not in the camera.
Contrast Saturation, and Sharpness	+0	I prefer to have all of my image tweaking done on the computer and not in the camera.

Summary of Chapter 5

Yow! This was a large chapter! Are you sure you want a summary of it ALL? Okay, here goes...

- There are four different focusing modes: Single, Continuous, Automatic (which automatically chooses between single and continuous), and Manual Focus. Continuous is ideal for subjects that do not stand still. Manual can be ideal for situations where you will be experimenting with many settings and your subject is not likely to move.
 - Direct Manual Focus (DMF) mode will let you focus manually after the camera has focus-locked.
 - With Spot Metering, the camera looks only at the subject within a small circle when determining the correct exposure.
 - When combining Spot Metering with AEL Exposure Lock, you can quickly meter for your subject, focus-lock, re-compose and shoot – a very fast way to get the right exposure in difficult lighting situations.
 - The Super SteadyShot feature can extend the range of usable handheld shutter speeds, but there are some things you must know about it to take full advantage of what it has to offer.
 - White Balance automatically corrects for artificial light sources so they record the scene the way the eye and brain see them.
-

- The simple-looking built-in flash actually has 8 sophisticated modes, including the ability to control the off-camera wireless flashes.
- The “Drive Modes” include single shot (takes one shot only), continuous (shoots many images if you hold the shutter release down), bracketing (both single and continuous), and two self-timer modes (a 10-second one for you to run into your pictures with; and a 2-second one optimized for nighttime shots on a flimsy tripod.)
- The in-camera Color / DEC digital effects can allow you to change the contrast, color saturation, sharpness, and color mode of your images.
- Dynamic Range Optimization (2 modes) can help brighten the shadows of high-dynamic-range pictures in certain circumstances. (Does not work when shooting RAW.)
- Zone matching is a unique feature designed to virtually extend the dynamic range of the digital sensor. It is very useful for wedding photographers and others who must deal with challenging lighting situations.
- Finally, my personal choice for camera settings were documented and explained.

Chapter 6

The “Secrets” of Light and Composition

A crash course for dramatically improving your pictures.

This chapter will provide a primer of the secrets which differentiate works of art from mere snapshots. Two of the most important techniques that will be discussed are:

- The quality of light can completely change the mood of an image.
- The “Rule of Thirds” rule of composition.
- A brief mention of other techniques

Okay, you now know the basics of how to use your camera. But having a sophisticated, capable camera is only part of the formula for better pictures. Behold! The remaining secrets to great photography are herein revealed!!

Let's start with the pie chart in Figure 6-1 below, which shows the relative importance of all the different variables that comprise a really good photograph.

Notice that the two biggest variables, *by far*, are 'composition' and 'quality of light'. Not how heavy

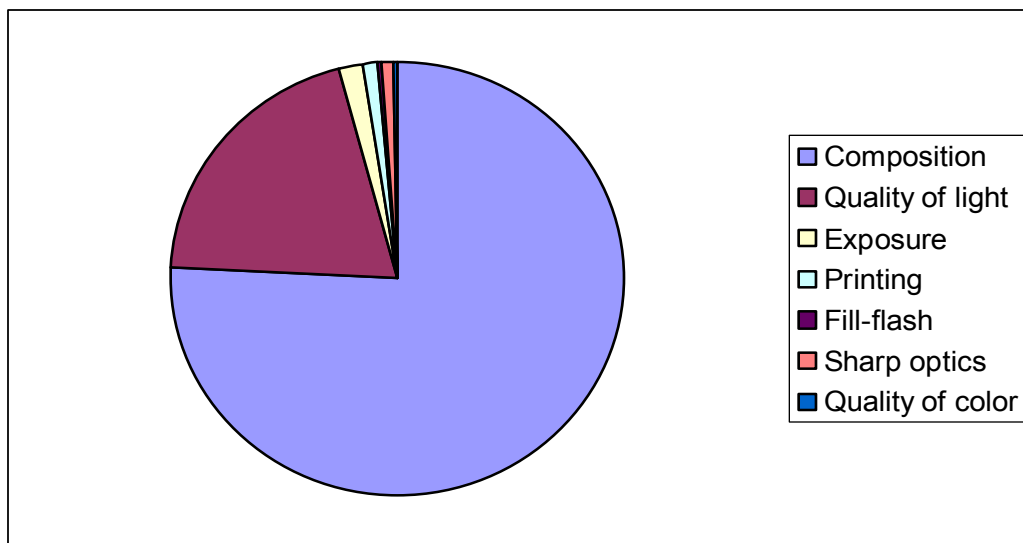


Figure 6-1: The elements of a good photograph.

your camera is, or how long your lens. As I will explain below, *armed with these techniques, your pictures taken with your Alpha DSLR can become substantially better!*

Writing with Light

Light is everything in photography. It can make the difference between a mere snapshot and a beautiful shot which conveys emotion. To see this, let's look at the example from **Figure 6-2**.



Figure 6-2: It's all about light. The right light can transform an average picture into something remarkable.

Both pictures were taken within minutes of each other. The first picture was taken with the camera's onboard flash. The second picture captured other available light which added a certain warmth and drama to the picture.

Many other examples will be shown throughout the rest of this chapter, but the upshot is *be aware of the quality of the light!* Most of us are oblivious to whether light is harsh (like on a bright sunny day) or soft (like on a bright cloudy day), because our brains adapt to bad light in all sorts of amazing ways. But as described in the previous chapter, the camera can see less than you can, and so providing the right kind of light for the camera can greatly increase the quality of the shot and, in some cases, help give your images an emotional feel.

The first general rule is, "Light from a nearby open window is often best for portraits." It creates a diffuse light which is quite pleasing to the eye. **Figure 6-3** provides examples.



Figure 6-3: Be on the lookout for diffuse window light. These are examples of the right light creating an ideal picture.

Don't have a window? Use an accessory flash to bounce light off of a white wall to simulate the kind of soft light that a window provides, as illustrated in **Figure 6-4**.





Figure 6-4: Fake an open window by bouncing the flash off a white wall.

Harsh light (as illustrated in **Figure 6-5** through **Figure 6-7**) is the antithesis of diffuse light and should be avoided at all cost.



Figure 6-6: Avoid Harsh Light. Such light looks OK to the unaided eye, but, cameras see it differently, rendering areas in shade, (like the eyes and below the nose), as very dark. This does not make a good picture!



Figure 6-5: Here's another example where the light is not even hitting the subject. Again, it looked reasonably good to the human, but not at all good to the camera.

Don't be caught making these kinds of mistakes! If you think you're in a harsh light situation, the best thing you can do is use fill-flash if your subject is within flash range, as in **Figure 6-7**.



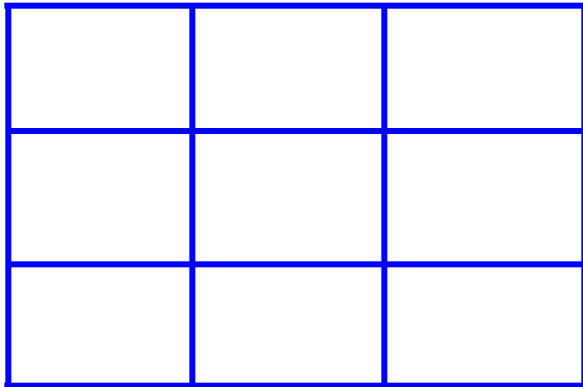
Figure 6-7: Fill Flash can help! Harsh light like this can often be made less harsh by using the fill flash.

Composition – The Rule of Thirds

As stated earlier, it is image composition -- how the photographer frames the shot -- which differentiates the "snapshots" from photographic masterpieces. The compositional rule that you are about to learn is used by all artists, even those who do painting and drawing.

Imagine that your viewfinder is divided into thirds (vertically and horizontally), as in the illustration below.

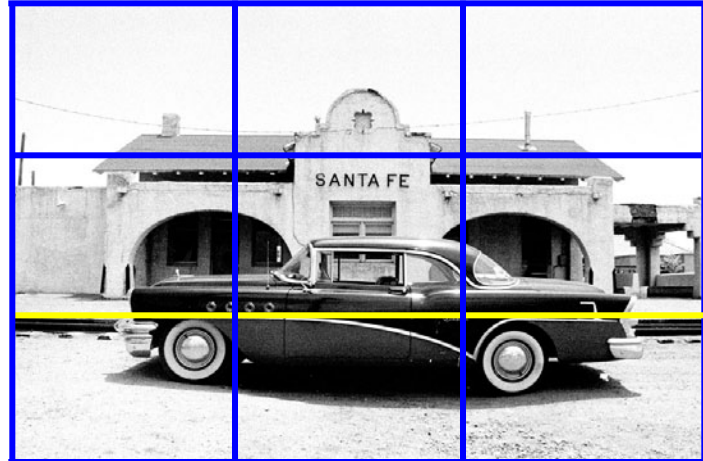
The "Rule of Thirds" simply says that if you place your subject close to any of these imaginary lines instead of in the direct center, it will result in a substantially more pleasing picture. (Results are even better if the subject is placed at any intersection of these lines!) Some examples are below.



The Frame is divided into thirds, both vertically and horizontally.



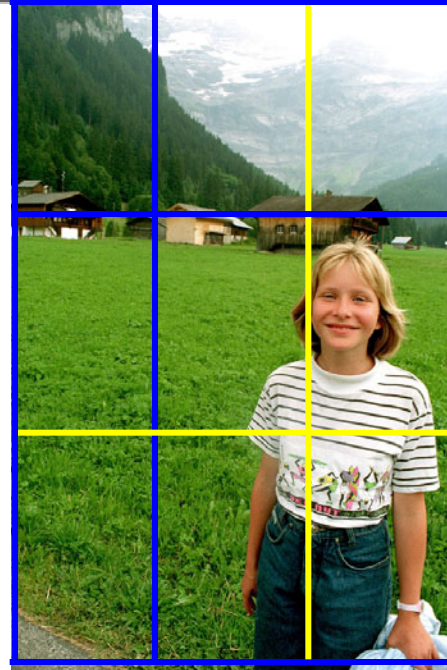
Placing the subject near the lower third (where the yellow line is) makes for great sunsets.



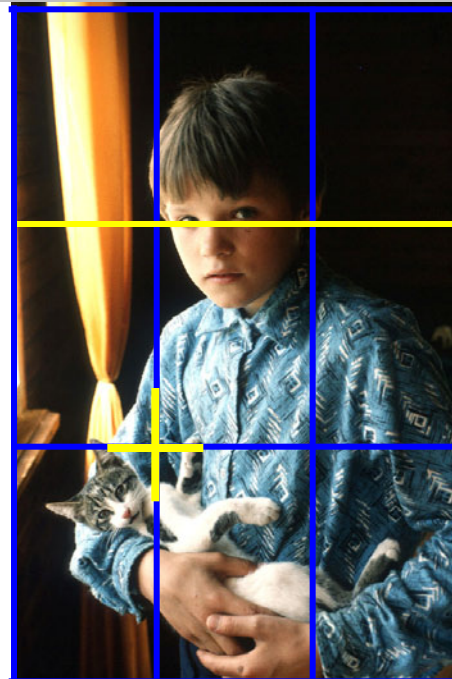
The same is true for any subject.



In a portrait, the face should always be somewhere in the upper third (again notice the yellow line).



Placing the subject near any intersection makes for more pleasing composition.



With two subjects, you can combine rules. (Note horizontal yellow line through the eyes, and the yellow lines (intersection) near the cat's face.)

So, the secret to great pictures isn't only having a Sony DSLR with all the available features, it's also knowing how to compose your image.

To be sure, there are other rules of composition, but the "Rule of Thirds" is the most important and can make the biggest difference in your pictures.

Some other rules you may wish to experiment with:

Texture – a picture composed of pure texture requires no conventional subject. (**Figure 6-8**)

Out of place shot – an out-of-place shot often involves a repeating pattern with a disrupting subject placed according to the Rule of Thirds. (**Figure 6-9**)

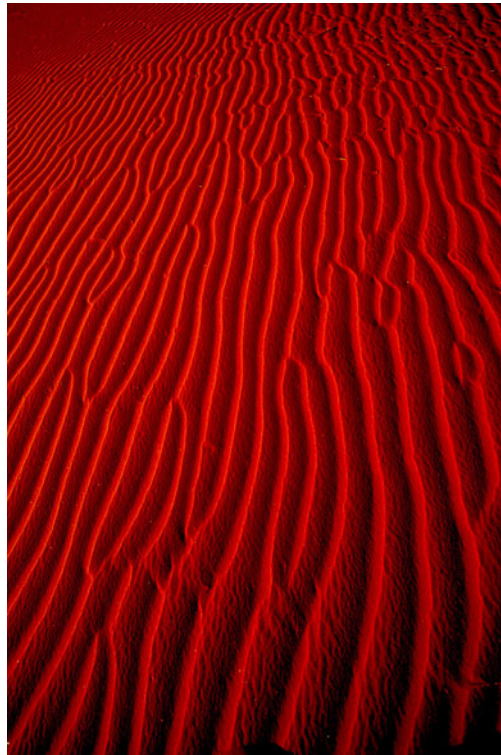


Figure 6-8: Pure texture can be a subject.

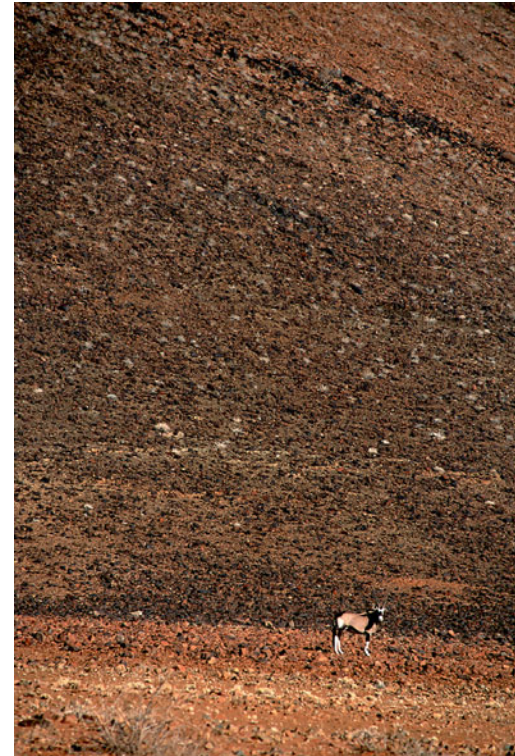


Figure 6-9: A subject which breaks the monotony.

Classical Portrait – classic head shots adhere to the rule of thirds – the eyes generally are placed right on the upper-third line. **(Figure 6-10)**

Environmental Portrait – an environmental portrait tries to capture the essence of a person’s character in their own environment. **(Figure 6-11.)** For shots like this the camera should be zoomed out all the way, with your subject placed via the Rule of Thirds and as much about the subject’s surroundings (“his or her life”) filling up the rest of the shot. Photojournalists use this technique a lot.

What was presented in this chapter only scratches the surface regarding the rules of photography, but in my experience this information is by far the most valuable in terms of being able to dramatically improve students’ images in the shortest amount of time. If you’d like to learn more about compositional rules that work well in photography, Chapter 10 contains some links to other resources (one of which is a downloadable e-booklet I wrote called “25 Ways to ‘Wow!’”, which I am shamelessly plugging here: www.FriedmanArchives.com/ebooks; scroll down and click on “25 ways to Wow!”).

Feel free to do what your Sony digital camera was born to do, which is *go out there and practice and experiment and practice some more*. It’s fun, and you won’t believe how your approach to photography changes!



Figure 6-10: Classical Portrait. Put the eyes along the upper-third.



Figure 6-11: Environmental Portraits shy away from the standard head-and-shoulders formula; instead they show the person in their element, documenting not only their character, but the space in which their gift thrives.

Summary of Chapter 6

In this chapter, we learned that we need to learn to “see” light the same way the camera does, and that diffuse light is a much better light to use than harsh light (which can cause ugly shadows on your subjects).

The Rule of Thirds is a compositional guide which says your subject(s) should be placed at lines which divide the frame into thirds in order to get the most pleasing composition. Other rules are briefly touched upon at the chapter’s end.

Chapter 7

Wireless Flash

Get ready to add drama to your pictures!

In this chapter the workings of Sony's wireless flash will be de-mystified. Several examples of it in use will hopefully inspire you to go out and play with this incredibly versatile and capable feature.

Introduction

Earlier in the book, I sung the praises of Sony's wireless flash system, which was invented by Minolta and is so good it has been copied by most competitors. In this chapter, I will explain why it is so good and give examples of its use.

“Wireless Flash” refers to the ability to move Sony's accessory flashes (specifically the HVL-56AM and HVL-36AM models, see **Figure 7-2**) away from the camera, position them anywhere else in the room, and still have them fire and auto-expose as if one of them was still sitting on the camera's flash-mount shoe. In the old days, it was very difficult to accomplish this, but the wireless technology makes off-camera flash as easy as autofocus makes it easy to focus.

Just to demonstrate the dramatic changes that can occur from even subtle changes in lighting, **Figure 7-3** shows a series of shots, showing one model and ONE FLASH using a multitude of flash positions. The left image was taken with on-camera flash (yuk!); the center with the flash off-camera and set into wireless mode (better!), and the right using an off-camera flash with softening umbrella (best!).

Just remember that a little bit of creativity can yield some pretty remarkable pictures. On the next pages are some more examples of wireless flash in use.



Figure 7-1: Wireless flash makes complex shots like this exceptionally easy!



Figure 7-2: The Sony Accessory flashes HVL-36AM and HVL-56AM, (which are identical to the Minolta Flashes 3600HS-D and 5600HS-D).



Figure 7-3: Move the flash around for greater impact. (See text).





This is an easy Product shot using two flashes. The “main” flash was placed above and to the right, while the 2nd flash was placed near the floor and pointed to illuminate the wall.



One reflector. One flash. All automatic.





This shot was taken with ONE flash over shoulder with two front reflectors (see text) – Wow!!

The above shot is a truly remarkable image using only ONE FLASH, and again shows off the versatility of this flash system in automatic mode. The flash was placed BEHIND the model and over her shoulder so that the bottom of the flash “beam” just touched her hair, and the majority of the beam hit the reflector placed out-of-frame, on the right. The right reflector was angled to reflect some of the light

onto the model's face, and some of it to the reflector placed out-of-frame to the left. This secondary-bounce light then illuminated the left side of the model's face.



One-light setup for the image above. Flash is over shoulder, and two large white reflectors bounce the flash first to the right and then the left side of her face.

How to Use Wireless Flash

Okay, enough examples. How do you actually get the camera and flash to work in wireless mode? The answer is “it couldn’t be simpler.” Just follow these 4 steps:

1. Attach an accessory flash to the camera’s flash shoe, and make sure it’s on.
2. Using the Function Dial, go to the Flash mode menu and choose WL (Wireless) (**Figure 7-5**).
3. Press the camera’s shutter release halfway. The camera communicates with the flash and sets the appropriate parameters. The display on the back of the camera indicates “wireless” mode.
4. Remove the flash from the camera. The large red light on the front of the accessory flash will blink once a second, indicating it is in wireless mode and is ready to fire when instructed by the camera.



Figure 7-4: Look Ma! No wires!

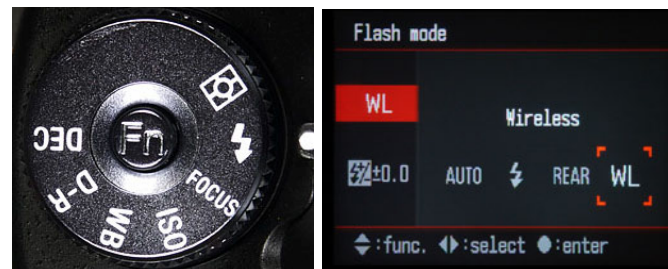


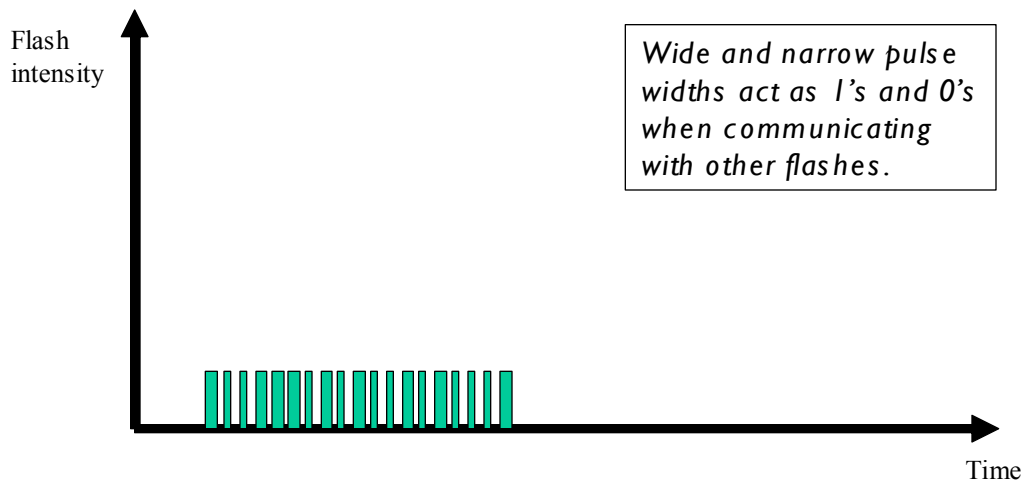
Figure 7-5: Putting the camera into wireless flash mode.

5. You can now place the flash almost anywhere in the room (as long as it can see the control signals from the pop-up flash), aim it at your subject, bounce it off the wall, aim it at the background, or [insert your own ideas here]. If the strength of the reflected pre-flash signals are adequately strong (as described in the next section), the system will do its best to make sure the exposure comes out correctly. Make sure the built-in flash is in the “up” position and shoot away!
6. Sometimes it’s helpful to test the communication between the camera and the remote flash before you take the picture. To test the system, set the camera to wireless mode (as described in step 2 above), pull up the camera’s built-in flash and press the AEL button. A tiny test flash should emanate from the camera’s built-in flash, and one second later a “response” flash should emanate from the off-camera flash, indicating that the two can indeed communicate with each other. *If you don’t see the response flash, it means the off-camera flash cannot see the light coming from the built-in flash, and you may have to re-position the flash.* In practice, you’ll be surprised at how well the flashes communicate even if there is no line-of-sight.
7. Once you’re finished with your photo session, you may want to put the flash and the camera into “normal mode”. To do this, do the reverse of Steps 1 and 2: mount the flash onto the camera, go back to the Function Dial, and on the FLASH screen choose “Fill Flash”.

TIP: It turns out that, even if the camera and the flash are in wireless mode, when the flash is attached to the camera they will both automatically revert to normal mode. And when the two are separated and the camera’s flash is lifted, they go back to wireless. I now always keep the camera and the flash in wireless mode, so I can switch back and forth effortlessly simply by mounting the flash on the camera, and then taking it off again.

How does it work?

Back in 1991, Minolta engineers had developed the ability to have the camera and the remote flashes communicate with each other using tiny bursts of low-intensity light – kind of like a “Morse code” using long- and short-light pulses. (See the figure below.) These pulses are too faint to significantly affect the final exposure, but are strong enough to communicate with any other flashes in the vicinity – even when they are reflected off the walls, ceiling, or the subject. This scheme allows even the tiny pop-up flash to control several off-camera flashes at once without the need for cables. (This is a BIG DEAL if you've ever had to struggle with the cable method on a regular basis.) By generating long and short pulse widths of light at relatively small intensities, the camera's built-in flash can tell the other flash units how much light to output and when to start doing it.



So, here's what happens from the moment you press the shutter release to the moment the camera finishes taking the picture:

- 1) The built-in flash fires a "Morse code" that tells all flashes in the room to generate a short, fixed "pre-flash" of known brightness.
- 2) The pre-flash burst is reflected off of the subject, read by the 40-segment metering cell and compared against each other and any ambient light present.
- 3) The exact amount of flash brightness needed is calculated by the camera. If ADI is set, and if the flash is mounted on the camera and facing forward, then the camera-to-subject distance is factored in as well. The camera communicates the calculated brightness value to the off-camera flash via another Morse Code message.
- 4) The aperture closes down, the mirror flips up, the shutter opens, and the camera's built-in flash sends a Morse code command to all of the off-camera flashes telling them to "FIRE!" and output the previously-set flash burst.
- 5) All of the off-camera flashes fire with the proper intensity in a single burst.
- 6) The camera's sensor may continue to collect light a little longer if you told the camera to use a longer exposure. Then the shutter closes and the exposure is finished.

If the flash is mounted on the camera shoe, the exact same sequence of events occurs, except that the communication between the camera and the flash happens through the contacts in the "hot shoe" and not through the Morse Code.

A real “conversation” between the camera and the remote flash has been recorded and appears in **Figure 7-6**. In this graph, time (in milliseconds) is represented by the horizontal axis, and each flash’s output is represented in yellow (the pop-up flash) and blue (the off-camera flash).

TIP: What happens if you’re shooting a subject that is too far away, or has low reflectivity, such as people in black clothing at nighttime? Or what happens when you’re bouncing the flash off the ceiling, but the ceiling is so far away that very little (TOO little!) of the pre-flash bursts actually get to your subject and reflected back to the camera? In these instances the camera effectively sees no pre-flash reflection, and therefore has no idea what to do. In these instances the camera just guesses, which can be sometimes right but quite often will be wrong. Using the flash +/- compensation function in these instances will have no effect on the flash exposure, since you’re trying to multiply a reflectance value of zero by a compensation factor. If you’re shooting under difficult circumstances and flash compensation seems to have no effect on the exposure, the best thing to do is to put the flash into manual output mode (see Manual Flash Mode section later in this chapter.)

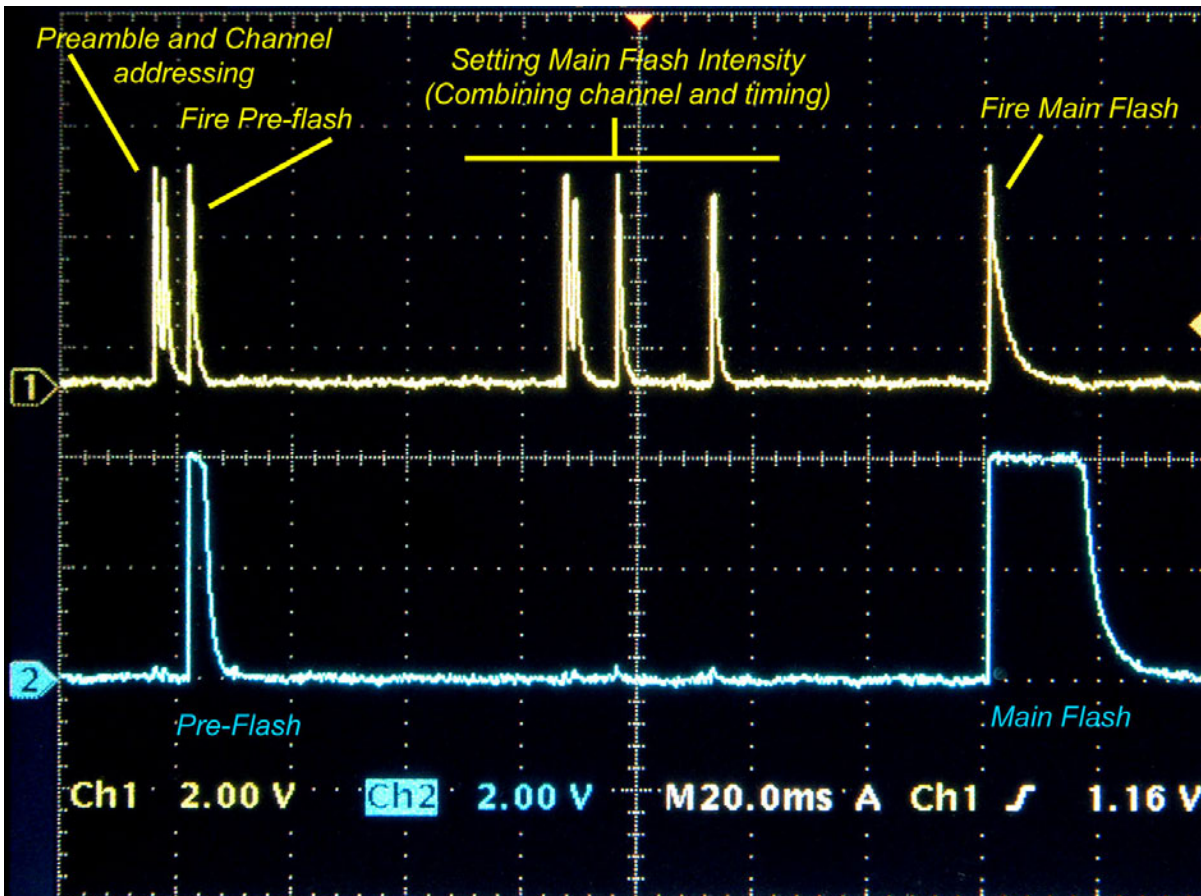


Figure 7-6: This is what a conversation between the pop-up flash (top, yellow) and the off-camera flash (bottom, blue) looks like on a digital storage oscilloscope. The pop-up communicates to the off-camera flash using combinations of wide and narrow flash pulses, and the off-camera flash responds by firing a pre-flash and a main flash of the proper intensity on command. The firing intensity is communicated to the off-camera flash in the middle section by a combination of pulses and time delay.

Will the Pre-Flash Bursts Affect the Exposure?

No. The pre-flash bursts all occur before the mirror flips up and the shutter opens, so none of that activity ends up in the shot. But, as mentioned in Step 4 on the previous page, if you're shooting with off-camera wireless flashes, the Morse Code "FIRE!" command does indeed occur while the shutter is open and might be noticeable in the shot. Generally all Morse Code commands are of such low intensity that they will not be detectable in the final image; for example see **Figure 7-1** at the beginning of the chapter (and in fact all other examples given here as well!).

However, there are conditions under which the "FIRE!" Morse code command becomes visible and can affect the appearance of the subject. For example, if you're shooting a close subject with the lens wide open (as I did in the examples in **Figure 7-7**), the dramatic lighting effect is washed out. This won't happen very often but if it does there are two things you can do about it.

The first is to simply put a piece of cardboard between the pop-up flash and the subject, so that there's no direct illumination by the flash on the subject. (Make sure that there's still a bounce path that the light can take to get to the off-camera flash!) The 2nd option is to place an Infrared filter on the front of the pop-up flash – this way the off-camera flash will still be able to see the control signals, but the same light will NOT appear in the image because the camera's sensor has an Infrared filter built right in! Snippets of overexposed and developed film (yes, FILM! Remember that?) can act as an ideal IR filter for the pop-up flash.



Figure 7-7: Usually the “FIRE!” Morse Code command from the pop-up flash has no significant effect on exposure, but you can create conditions where it makes a big difference (usually in shooting close subjects with large lens openings.) For these shots a wireless flash was placed below on the right, and the left image shows what a dramatic shot can look like when the “FIRE!” command affects the shot. Putting an IR filter in front of the Pop-up flash, or simply blocking direct illumination with your hand or a piece of cardboard, produced the intended dramatically-lit scene on the right.

How to do “Ratio Flash” for professional lighting results

Professional portrait photographers and cinematographers have learned that the most flattering and dramatic lighting for people is “ratio lighting”, where you have two lights illuminating your subject from the left and the right sides, but one light is twice as strong as the other. **Figure 7-8** shows some examples of ratio lighting:

Achieving ratio lighting with Sony’s wireless flash is very simple. Simply have two off-camera flashes and place one twice as far from the subject as the other. Voila!



Figure 7-8: Examples of ratio flash.

TIP: An important feature of Sony’s wireless system does not appear in any manual: you CAN use multiple flashes on a subject, all on automatic, all placed wherever you please. In this scenario, the camera will calculate the proper main burst intensity based on the cumulative reflections of the pre-flash, REGARDLESS of whether the “proper” amount of light was the result of just one flash, or a combination of two or more flashes.

Bounce Flash

Sometimes you don't have a softening umbrella with you to soften the light as in **Figure 7-3**. A nice trick used for decades by the pros is to use low, white ceilings (if they exist where you are) and bounce the light off of the ceiling – the ceiling acts as a softening diffuser and can make the light look very natural. (See **Figure 7-9**.)

Both the Sony flashes can tilt up to bounce the flash off the ceiling (the HVL-56AM can also swivel sideways, to allow bouncing when shooting in “Portrait” format (i.e., vertically); this was shown in **Figure 6-4** of Chapter 6.



Figure 7-9 Bounce the flash off the ceiling for natural-looking light.

Light Modifiers

Even better lighting results can be had using a “light modifier” – pointing the flash UP (like you’re going to bounce it off the ceiling) and then attaching a large sheet of paper as illustrated in **Figure 7-11**. (Another example of results using this technique is shown to the right in Figure 7-10). This very effective (and inexpensive!) tool takes some of the light going straight up and reflects it forward, sending soft, diffused light toward the subject. The rest of the light bounces off a low, white ceiling, providing natural-looking illumination for the rest of the room. The result is the best of both worlds and very natural looking lighting!

Since light is such an important ingredient to good photography, light modifiers are almost always a necessary part of a great flash picture!



Figure 7-10 An example of natural light using a “light modifier” (a piece of paper attached to the flash, which provides both diffused front light and even more diffused ceiling light). (And fake magazine covers like this one make great gifts!)



Figure 7-11: Examples of Straight on-camera flash (Yuk!) vs. ceiling bounce. The third picture uses an easy-to-make light modifier which takes some of the light destined for the ceiling and converts it into a soft, pleasing subject light. What a difference!

TIP for HVL-56AM owners: This flash has a built-in 17mm diffuser designed to widen the flash beam when using extremely wide-angle lenses. But this handy little built-in diffuser can also double as a light modifier to get results similar to the third image in Figure 7-11 above. This trick works best for subjects that are close, like less than 6 feet away.



Manual Flash Mode (HVL-56AM Only)

The HVL-56AM flash has the capability to provide a fixed amount of light output when triggered by a camera in wireless controller mode. With the advent of automatic wireless flash exposure, why would you ever need manual control like this?

An example which provides the answer can be seen in **Figure 7-12**. This is the result of a portable studio I have set up using only three wireless flashes (two to illuminate the background, one bounced into a reflector umbrella for the subject.) In this scenario you cannot rely on the camera's auto flash exposure mode because of the predominantly white background – the camera's exposure computer would look at all that light coming back in from the background and say “Whoaa! That's WAY too much light! I'll cut back to the total amount of light I command to make sure pictures looks about 18% grey!!” (This is the same problem with normal exposure modes of any camera, and it is discussed at length in Chapters 4 and 5.)

What to do? Studio photographers solved the problem ages ago by using large strobe lights (so they can shoot at small f/stops) that always flash with a fixed amount of light. The photographer would use a handheld flashmeter to measure



Figure 7-12: 3 wireless flashes set to manual mode make for an inexpensive, portable studio setup.

the light falling on the subject and calculate the proper f/stop to use. The background lights (which don't even illuminate the subject) would have to be measured with a flashmeter as well.

Well, thanks to the HVL-56AM's manual flash output mode, a Sony wireless photographer on a budget can do the same thing, and it's a whole lot less work to set up. A handheld flashmeter is still recommended, but you can also set things up by trial and error if you'd like.

To put the HVL-56AM into Manual mode, do the following:

1. Press the MODE button until you see the "M" appear (this means MANUAL output; as opposed to TTL (Auto flash exposure) mode).
2. Use the + and – buttons to control the fixed amount of light that the flash sends. "1/1" means full output; "1/2" means half of full output... all the way down to 1/32nd of full output. (How much is appropriate? Some test shots will reveal this quickly.)
3. Press the SELECT button several times until you see the "WL" (Wireless") icon flash; then press + or – until it says "On".

Voila! You're done configuring the flash for fixed light output. Now, every time the camera's pop-up flash is fired in Wireless mode, the off-camera flash will put out the fixed amount of light you just

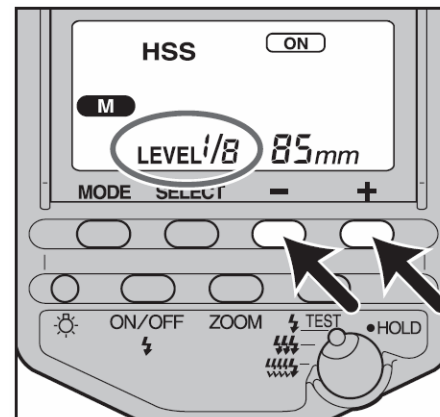


Figure 7-13: Manual mode setting for the HVL-56AM. Press MODE until "M" (manual) appears, then press +/- to select the amount of light output.

specified. (Although your off-camera flash is now in manual output mode, your A100 is unaware of this fact, and will continue to send pre-flashes, intensity values, and the “FIRE!” commands via the Morse Code pulses described at the beginning of the chapter.)

Figure 7-14 (next page) shows a diagram of how my portable wireless studio is set up. You can read more about this technique from this article I wrote for f2 Photo + Digital magazine: www.FriedmanArchives.com/ebooks and click on “A Poor Man’s Studio with 3 wireless flashes”.



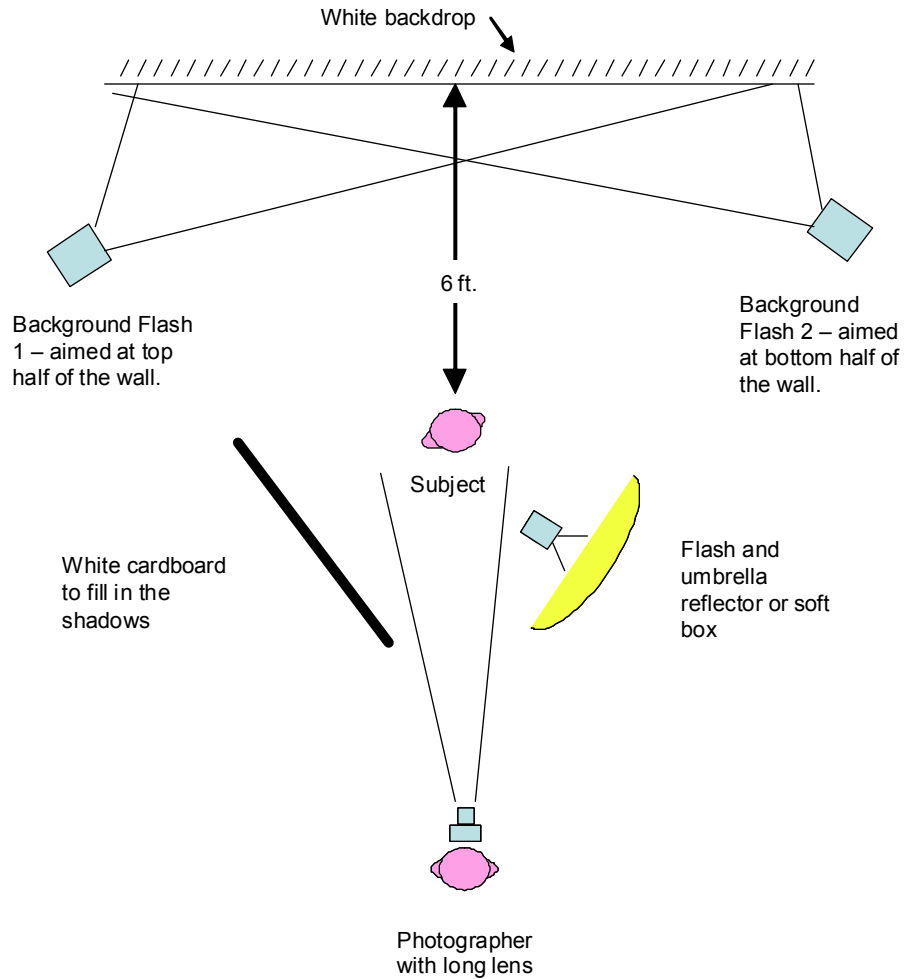


Figure 7-14: Bird's eye view of a portable studio using three wireless flashes.

High Speed Synch (HSS) flash

The same circuitry that allows an accessory flash to communicate in Morse Code also allows the flash to “spread out” the total light output by providing a steady stream of low-intensity bursts of light rather than just one large one. (See **Figure 7-16** below.) *This means you can shoot with flash at a much higher shutter speed than normal.* This means you can shoot outdoors, wide open, and still have your remote flash expose everything automatically (see **Figure 7-15** for an example of this). Equally amazing, the Alpha 100 has combined the ability to do HSS with off-camera flashes, something no other competitor can do. This is actually quite a technical achievement, and someone should give the engineers an award for figuring out how to do this.

It’s a little tricky to explain how they did it, so if you don’t care and just want to know how to use it, skip to the “How to Activate HSS” section below.



Figure 7-15: Unlike other cameras, the A100 lets you shoot wide open on a sunny day (1/2,000th in this case), providing for the out-of-focus background and still getting the benefits of wireless flash. Here, the wireless flash with a small softbox was set to the left of the subject, who was standing in open shade.

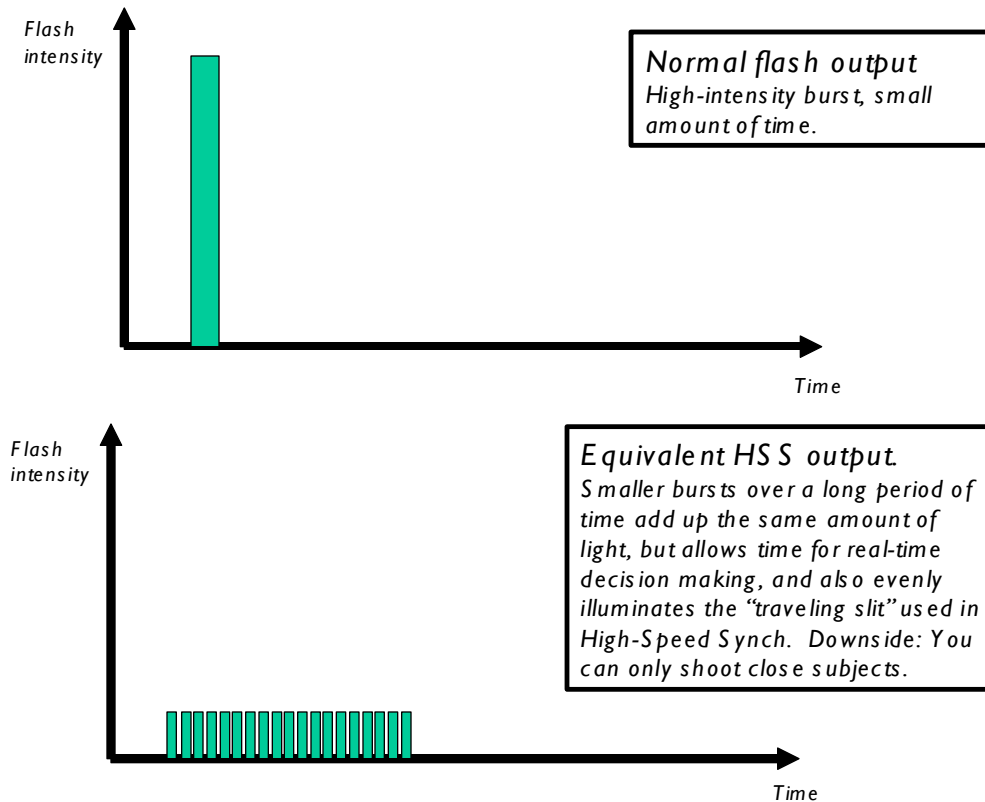


Figure 7-16: The basis of High-Speed Sync (HSS) flash.

How it works: Rather than waiting for the shutter to open all the way before triggering the flash (as was necessary before HSS was invented), the flash is told to output several consecutive flashes at once whose intensity is right for the subject (as determined by the pre-flash). This flash pulse stream seamlessly illuminates the sensor while the shutter’s “traveling slit” exposes each of these small flashes onto a different part of the sensor.

It’s kind of like standing outside of a baseball park and looking at the game through a tiny little slit in the fence. You can’t see the whole scene at once, but you can move your head left and right and “see” the entire scene a small slit at a time. That’s how HSS works – as the shutter’s “slit” travels across the face of the sensor, the sensor is provided another thin strip of the scene (via a flash pulse), and the pulses must be perfectly synchronized with the position of the shutter in order for the effect to work right. That is a remarkable achievement in itself, but this feature also works perfectly *while the sensor is moving in Super SteadyShot mode!!!* How in the *world* did they do that?? Once again, the boys in Japan pulled off an engineering miracle. Note that HSS is only possible using an accessory flash – the pop-up flash isn’t capable of it.

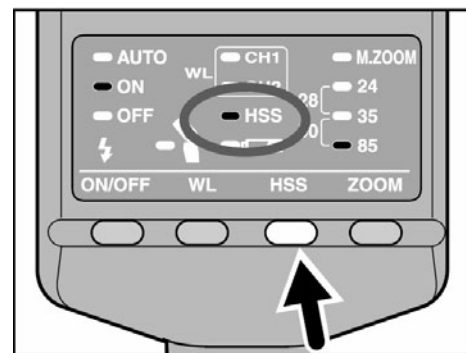


Figure 7-17: To activate HSS on the HVL-36AM flash, push the HSS button.

How to Activate HSS

For the HVL-36AM: Simply press the “HSS” button on the back, and verify that the HSS indicator is illuminated (**Figure 7-17**).

For the HVL-56AM: In TTL mode, press “SELECT” until the HSS indicator flashes. Then press the +/- button until the words “On” appear (**Figure 7-18**).

Once HSS is set on the flash; you must then attach the flash to the camera, press the shutter release button half-way, and then you can either leave the flash on or take it off and use it wirelessly.

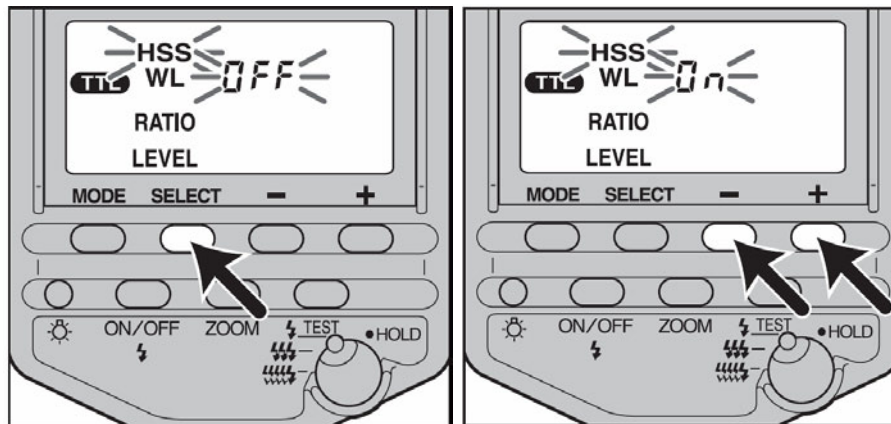


Figure 7-18: To activate HSS on the HVL-56AM flash, follow the directions in the text.

Another Example

Here is another example of how wireless flash can make a huge difference in a shot. The top image in **Figure 7-19** was shot underneath the pier at the beach – I was hoping to avoid the harsh shadows associated with direct sunlight. Exposing for the face using the ambient light produced an image that was pretty good, but the background was overexposed, and if I had underexposed a little bit to compensate the subject's face would have been too dark.

So, I ran to my car and got my umbrella and light stand (doesn't everyone carry these things in their car?), attached my wireless flash to it and set it up to the left of the subject. I set the camera to Manual exposure mode, metered for the background, underexposed by 1 stop (so the background would be a little on the dark side) and set the pop-up and off-camera flash to “wireless”. What a difference!!



Figure 7-19: Wireless flash outdoors can help you control the light and add a flair of drama to your portraits.

Epilogue

I have often joked that there are only two people in the world who understand the brilliance of the wireless flash system -- the guy who invented it, and Phil Bradon, the legendary technical support person at Konica Minolta USA. (Three if you count me, but I learned most of what I know from Phil.) But the fact is, very few Sony flash owners who have read the manual would ever know about any of what I describe herein, or the different ways in which the wireless flash can be used. Hopefully, this introduction will be a good incentive to all of you to experiment with the many creative options enabled by Sony's wireless flash system.

Summary of Chapter 7

- The wireless flash system allows an accessory flash to operate off-camera, and still expose the image automatically as if it were on-camera.
 - Lots of examples of its use are included in this chapter.
 - It operates by the built-in flash communicating with the off-camera flashes via tiny pulses of light – not enough to affect the exposure significantly, but strong enough to be seen by the camera even after bouncing off several surfaces first.
 - It is a very versatile creative tool that I highly endorse and you really should try!
 - Bouncing light off the ceiling and using a light modifier are other great tools for the location photographer's arsenal.
 - Light modifiers combined with off-camera flash are essential to compelling flash images.
 - High Speed Synch (HSS) allows you to take flash pictures at much higher shutter speeds than otherwise possible.
-

Chapter 8

Digital Imaging Concepts Explained

JPG, RAW, Image Size, and Print Resolution clearly de-mystified!

In this chapter I will de-mystify many of the digital imaging concepts that used to scare off many a beginner. The following will be discussed:

- What is a pixel? And how many do I really need?
- Why does a 10 MP camera produce 3 MB-size files?
- What are the differences between JPG and RAW files? Which settings should I use?
- The unexpected complexity between image size and print resolution.
- What are the different kinds of memory cards available?

File Format Executive Summary for the Impatient Reader

Okay, let's cut to the chase. I won't bother spending time here explaining what JPG and RAW mean – that will be covered later on. Below is what you *really* want to know!

- If all you want are 4" x 6" photos, use the “Standard” setting. The quality will be outstanding and you will be able to squeeze many, many more images onto your memory card.
- If you want to make 8" x 10" or 11" x 14" enlargements, use the “Fine” setting. The file sizes are a little larger than the “Standard” setting, but the quality is high enough to support enlargement.
- If you're a control freak and/or you want to make enlargements bigger than 11" x 14", and you don't want the camera making color balance, contrast, or Dynamic Range (DRO) adjustments for you, use the RAW setting (or the RAW + JPEG setting, which produces one of each). Then use the Picture Motion Browser software on your computer (introduced in Chapter 9) to tweak the image to perfection in the computer rather than in the camera. RAW files take up more space on the memory card than JPG files, but the image will likely look much better and be free of “JPEG compression artifacts” (which are described later on page 286).

To switch between different image qualities: **MENU → 1 → Quality → [pick one]**

The Chapter Begins...

JPG. Bits and bytes. Compression artifacts. Raw. File sizes. Noise. “If only someone would explain all this technical stuff in an easy-to-understand way!” Many people say this to themselves, having thumbed through other digital photography books filled with lots of techno-babble. Well, I hear you, and in this section I intend to provide just such an understandable explanation.

“What’s a pixel? What’s a megapixel?”

Think of a pixel as a tiny little light sensor that can “read” a certain color and measure its intensity. Now think of ten million of them all gathered on a small silicon rectangle and seated behind a camera lens, and you have yourself a ten-megapixel image sensor. (It’s actually more complicated than that, and, as promised in the book’s Introduction, we’ll delve into more detail later on.) For the purposes of imagining the concept, though, it’s helpful to think of a pixel as one of many little dots that make up the image, just like the dots that make up a newspaper image – except the array is much, much more dense.

MORE DETAIL FOR THE INQUISITIVE: Okay, so I’ve oversimplified the above concept to the point of hyperbole, but it was in the interest of getting the idea across. In a real digital sensor each pixel is covered by a colored filter so that it can only measure the intensity of the red, green, or blue light that hits it. The camera’s computer then takes this information, does a great deal of processing, and produces a picture in which each “dot” has a real color value, not just that of the red, green, or blue value provided by the one pixel. Pretty impressive, huh?

Anyway, my goal was to make the concept of upsampling comprehensible. If necessary, refer back to the book’s Introduction where I talk about Christopher Columbus to understand why oversimplification is sometimes a Good Thing.

“How many Megapixels are enough?”

Well, it depends on who you talk to. There are some people for whom there can *never* be enough pixels in a digital camera! (These are usually the folks who continue to use the old-fashioned 8 x 10 view cameras, with the black cloth that gets pulled over the photographer’s head and large tripods. You can’t beat those for image quality when making very, very big enlargements!) Anyway, there is no straightforward answer to this question, as everyone’s needs are different, and everyone’s standard for measuring quality is equally different.

But to provide a more absolute answer, I’ll start with a hard, irrefutable fact: A 10-megapixel camera can produce an image that is approximately 8.5" x 13" in size at 300 dots-per-inch.

What if you want to make an 11" x 14" or larger image from your digital files? Well, using tools like Photoshop (or Picture Motion Browser) you can “upsample” the image. Upsampling is the process of adding more pixels to the original image so that the picture prints larger. For example, in the illustration in **Figure 8-1**, the “original” image is only 3 x 3 pixels in size (it must have been taken with a *very old* digital camera! ☺). But we want the picture dimensions to be twice as big, so we go to Photoshop and

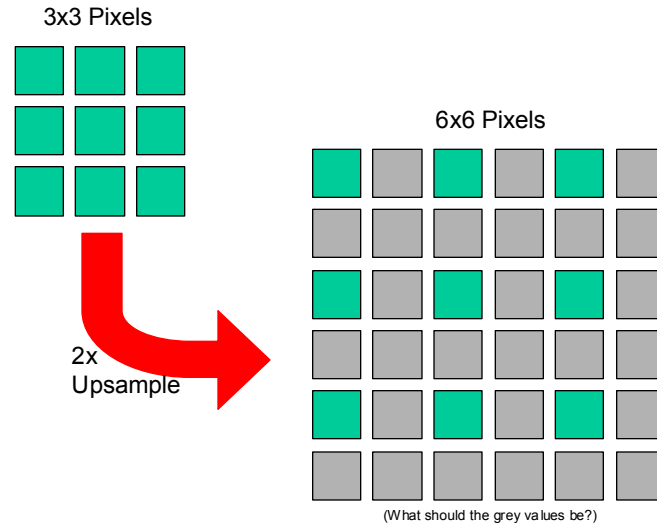


Figure 8-1: Making an image larger via upsampling.

hit Image → Image Size and set it to 6 x 6 pixels. And it obediently adds more pixels to make the total image size 6 x 6.

But how does Photoshop know what kind of pixels to add? Well, it doesn't – it has to guess. Photoshop uses an “interpolation algorithm” which looks at the original pixels and tries to match the average of them. This works pretty well when you're enlarging a little bit; if you're enlarging a lot (like taking your image and making it billboard size), then it will look awful unless you stand really, really, really far away.

Real Letters from Real Readers

“Hi, Gary. What is your recommendation for when to use standard and fine? And what is the maximum size enlargement you would make using fine? Thanks! -Steve.

(P.S. Great book!)

Hi, Steve! It turns out that your question has no correct answer, for it depends upon the size, distance, use, and perception abilities of the viewer. You can take a "standard" JPG and blow it up to billboard size, and it will look great when viewed from a large distance. It starts to matter when you look at enlargements up close (no definition for what "up close" means); plus some people can instantly recognize .jpg compression artifacts, while most others simply cannot. This is why I was intentionally vague in the book when I discussed the different choices -- all I can really do is spell out the hierarchy of quality; but the limits of what can be done with each format is completely dependent upon how it's used and the sophistication of the people viewing it. (Continued next page)

Real Letters from Real Readers (continued)

I personally shoot Fine most of the time because it gives me the best quality without having to shoot RAW and increase my time in front of the computer (which is already pretty considerable). The largest I have ever blown up anything is 20" x 30", and I would not hesitate to go larger using 3rd party re-sampling tools such as Genuine Fractals.

Hope this helps!

Sincerely, Gary Friedman

File Types

True to form for the computer industry, there were many different ideas in the early days when everyone was asking, “How shall we represent a photograph using 1s and 0s?” Several people came up with over twenty proposed formats, and after a brief shake-out only a handful are now in common use worldwide. Your Sony digital camera knows how to write in ONE of these standard formats (JPG), plus a proprietary format called RAW (with a file extension of .ARW). Each format has pluses and minuses, and like anything else, if you understand the tradeoffs you can intelligently choose which file type to use for your kind of photography.

To explain the tradeoffs between file types, allow me to explain what happens each time you take a picture with your Alpha 100:

1. All the information in the picture is transferred from the sensor to the camera’s internal computer, and

2. The camera's internal computer does what a 1-hour photo processing lab usually does: it adjusts the picture for contrast, color, sharpness, and other parameters, and then
3. writes it to the camera's memory card as an image file. (See below for the various types of image files.)

So let's talk about the various file formats and their tradeoffs, starting with the simplest ones:

RAW: RAW mode is simply the output from Step 1, skipping Step 2 completely. It is useful for professional photographers who want the highest possible quality and who don't mind spending more time on the computer, manually doing what the camera would normally do automatically in Step 2. Although RAW image files produce images of the highest quality, their file sizes can be quite large (about 10 MB in size), which means you will not be able to store as many images on your memory card.

TIFF: TIFF is not offered by the Alpha 100, but you'll need to know about this when working with other imaging professionals. This was one of the earliest standard file formats for storing images, and offers the highest image quality format (because there is no compression). Although TIFF image files produce images of the highest quality, their file sizes can be quite large (about 30 Megabytes!).

JPG: At the time that the image file formats were being established, the Joint Photographic Experts Group (JPEG for short) got together to establish an alternative file format that would be substantially more compact than TIFF files. Comprised of experts in imaging, perception, cognitive science, computer science, and mathematics, the JPEG group devised a method of "compressing" an image by throwing away information that the human eye and brain cannot perceive, thus reducing the file size tremendously without significantly altering how the image appears.

As a simple example of how files get “compressed”, let’s start with an image of a Japanese Flag, which is a large red dot in a plain white rectangle. When stored as a RAW file, the information is arranged something like this (pretend the red parts constitute a circle):

```

white white white white white white white white white white white white white white white
white white white white white white red red white white white white white white white
white white white white white red red red red red white white white white white white
white white white red red red red red red red red red red red red red white white white white
white white white red red red red red red red red red red red red red white white white white
white white white red red red red red red red red red red red red red white white white white
white white white red red red red red red red red red red red red red white white white white
white white white white white red red red red red white white white white white white
white white white white white white red red white white white white white white whites
white white white white white white white white white white white white white white white

```

With a 10 Megapixel camera, this information plus the header info usually adds up to quite a large size: $(3872 \text{ pixels}) \times (2592 \text{ pixels}) \times (8 \text{ bits per pixel}) = 80 \text{ Megabits} = \text{roughly } 10 \text{ Megabytes!}$

When stored as a JPG, however, the information in the file might be represented something like this: “Okay, the first row has 417 pixels that are all white. The second row has 312 pixels that are white, followed by 87 that are red, followed by 312 that are white”, and so on for each row. (In reality, the compression is much more complex than that, involving trig functions and wavelets and other compression algorithms. But the general idea is that very clever methods are used to throw out

information the eye cannot perceive at a distance, and then represent what's left in clever ways that take up less space.) Because a more detailed image would require more words than “This much white / this much red” to describe it, images containing a lot of detail will be slightly larger than images that are simple (like the flag example above). This is why no product brochure or manual can ever tell you with certainty how many images will fit onto a memory card – when shooting in .jpg, it all depends on the content of the image. The most significant advantage of shooting with .jpg is the sheer number of images you can fit onto a card – up to five times more than if you were to shoot with RAW!



JPG Compression Artifacts

One thing about the JPEG compression standard that *wasn't* specified was how much to compress the image – this is usually up to the user. The JPEG standard (represented as a .jpg file extension in most computers) allows you to specify a “quality” level of one to ten, ten being the best quality. The tradeoff is file size, for as the compression gets higher, the file size gets smaller and the image quality gets lower.

For an example of the quality tradeoffs the JPG format offers, have a look at **Figure 8-3**. These examples were made using another software package which allowed me to specify the .jpg compression levels from 1 (best) to 100 (worst). These represent extreme limits, and are being used here just to give you an understanding of the correlation between file size and image quality. In real life, you would probably never want to store the image using the worst quality settings.

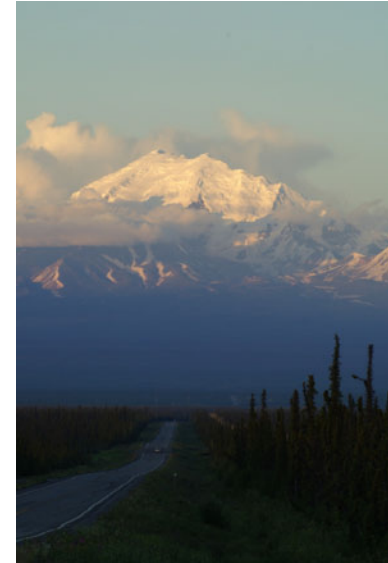


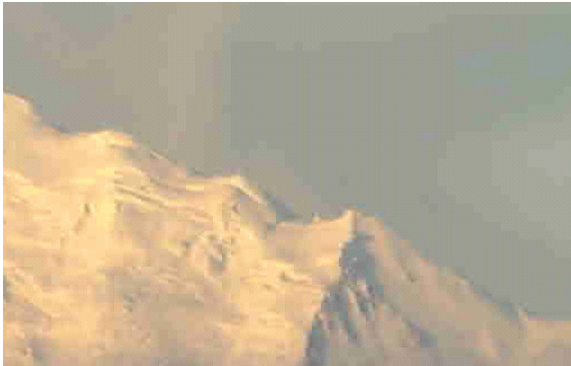
Figure 8-2: The source image for the .jpg compression comparisons in Figure 8-3.



Compression = 1 (3.2 Mb, Highest quality)



Compression = 51 (218 kB, Still pretty good)



Compression = 80 (178 kb, Can start to see some compression artifacts in the sky)



Compression = 100 (158 kb, Yuk!!!)

Figure 8-3: Extreme examples of JPG compression artifacts. (Don't try this at home, kids!)

IMPORTANT TIP: These compression artifacts can get worse the more you work with them. Every time you open-modify-save-close a file, the file is re-compressed, adding more compression artifacts to whatever was already there. To avoid this (and in keeping with the mantra of NEVER OVERWRITE YOUR ORIGINALS), always go back to your original before making any modifications, and make sure that you make all of your modifications in one session before saving as a JPG.

The Alpha 100 allows you to save your images as .JPG files with two quality formats: “Standard” and “Fine”. You can switch between these modes by invoking **MENU → 1 → Quality → [Choose one]**. Most people would have to examine an enlargement with a magnifying glass in order to see the differences in quality between these two settings. Just as not everyone can hear differences between .wav and .mp3 digital audio file formats, not everyone can perceive the difference in image quality between RAW and JPG, or between different qualities of JPG. Try shooting in all 3 modes, printing the results at 8x10, and see if you can tell the difference!

When traversing the **MENU → 1 → Quality** menu, you will also come across this setting: “RAW + JPEG”. As you might guess, this setting produces *both* a RAW image and a “Fine” quality .JPG image each time a picture is taken. Why is this useful? Because when professional photographers are reviewing the images they have taken, it is often easier (and substantially faster) to review the smaller .jpg images to find the one or two shots that are the best. Once found, they then use the Picture Motion Browser software to open the high-resolutions RAW versions of those files and work with them from there. (See Chapter 9 for more on how to do this.)

So, a summary...

RAW (*.arw)	A “dump” of all the bits from the sensor. Large file size. Requires post-processing on a computer by hand. Designed for professionals who demand the highest image quality. It takes about 3 seconds to write the image to the memory card, but because of the camera’s large buffer you can shoot up to 8 images before the camera will say “Hold on while I write all this stuff to the memory card!!!) after which time you can then take another image in roughly 1-second intervals. RAW mode produces the highest quality images because there’s no loss due to compression.
TIFF (*.tif)	(Not created by the camera, but exportable from RAW via Picture Motion Browser and 3 rd party programs such as Adobe Photoshop.) Same information as RAW, plus the color, contrast, and other factors are applied. About 3 times larger file size than RAW, but unlike RAW it can be read by most other applications. TIFF and RAW produce the highest quality images because there’s no loss due to compression.
JPEG (standard or fine) (*.jpg)	Very high image quality with substantially reduced file sizes (see comparison table below) due to innovative compression techniques. The A100 can shoot .jpgs at 3 frames per second all day long (assuming your memory card can keep up).



Just as a comparison, I set my camera up on a tripod and took five shots of a single scene (**Figure 8-4**) each using a different format. Check out the table below for how they all compare.

Here are the different file sizes used by each:



Figure 8-4: Sample image stored at various resolutions.

Image Format	File Size
Standard (.jpg)	1.4 MB
Fine (.jpg)	2.7 MB
RAW (.arw)	9.3 MB
RAW + JPEG produces 2 files	9.3 MB + 2.7 MB .JPG ("fine")

Image Size

Image size is another way to reduce the file size of your images. Whereas .jpg compression like “fine” and “standard” reduce file size by lowering the quality somewhat, selecting a smaller image size simply records fewer pixels. You can reduce the image size in situations where you might not need a 10 Megapixel-sized image -- For example, if you know your images are only going to be printed at 4” x 6” and no larger, then the lowest setting of “S” is all you need. (And as a fringe benefit, you can fit over 1,400 images onto a 1 GB memory card when you shoot in this mode!!)

You can change the resolution by invoking **MENU → 1 → Image size → [Choose your resolution]**

When set to the largest size, a 10 megapixel camera produces enough pixels to print a 8.5" x 13" picture at 300 dots-per-inch (dpi). (Not a standard size, but at least you’ve got room for cropping. ☺) Below is a table which matches the image size options provided by the camera with real-world print sizes. Each of these print sizes implies you are printing at 300 dots per inch (dpi), which is considered “photo quality” regardless of the kind of printer you use.

Pixel Size	Ideal use
L: 3872 x 2592	Enough pixels to print a 8.5" x 13" enlargement at 300 dpi.
M: 2896 x 1936	Enough pixels to print a 6.5" x 9.5" enlargement at 300 dpi.

S: 1920 x 1280	Enough pixels to print a 4" x 6.5" print at 300 dpi.
----------------	--

TIP: Most people just shoot at the highest image size possible (3872 x 2592), because you can always make an image smaller by throwing away pixels (via Picture Motion Browser or Photoshop, for example), but it's extremely difficult to add pixels to make a picture larger.

Image Size and Resolution

There are three variables which determine how large an image will appear when printed or when viewed on the web: the number of pixels (height), the number of pixels (width), and the number of pixels per inch (typically referred to as “dots per inch” by the majority of the populace). **Figure 8-5** shows three IDENTICAL sets of pixels that can magically “change” dimensions when printed on printers of different resolution.

The gist of this is *the same set of pixels can print in three different sizes* just by redefining the dots-per-inch setting of the printer.

This is an important concept to grasp if you will be printing the images yourself on your inkjet printer, for sizing them properly (using tools such as Picture Motion Browser or Photoshop) to match the output resolution of the final imaging device (be it printer or web page) is critical to retaining the image quality.

So, how is this all relevant? Let's bring this theoretical discussion back down to earth. An Alpha 100 has a ten megapixel sensor which produces images that are about 53" x 36" x 72 dpi out of the camera. Taking the exact same set of pixels and changing to print resolution (300 dpi), the dimensions change to 13" x 8.6" x 300 dpi.

If you wanted to make the image twice as large, you could decrease the dpi to 150 dpi and end up with an image 26" x 17" in size. Such large images are often viewed at a distance, and therefore, few notice the lower resolution needed to achieve such a large size.



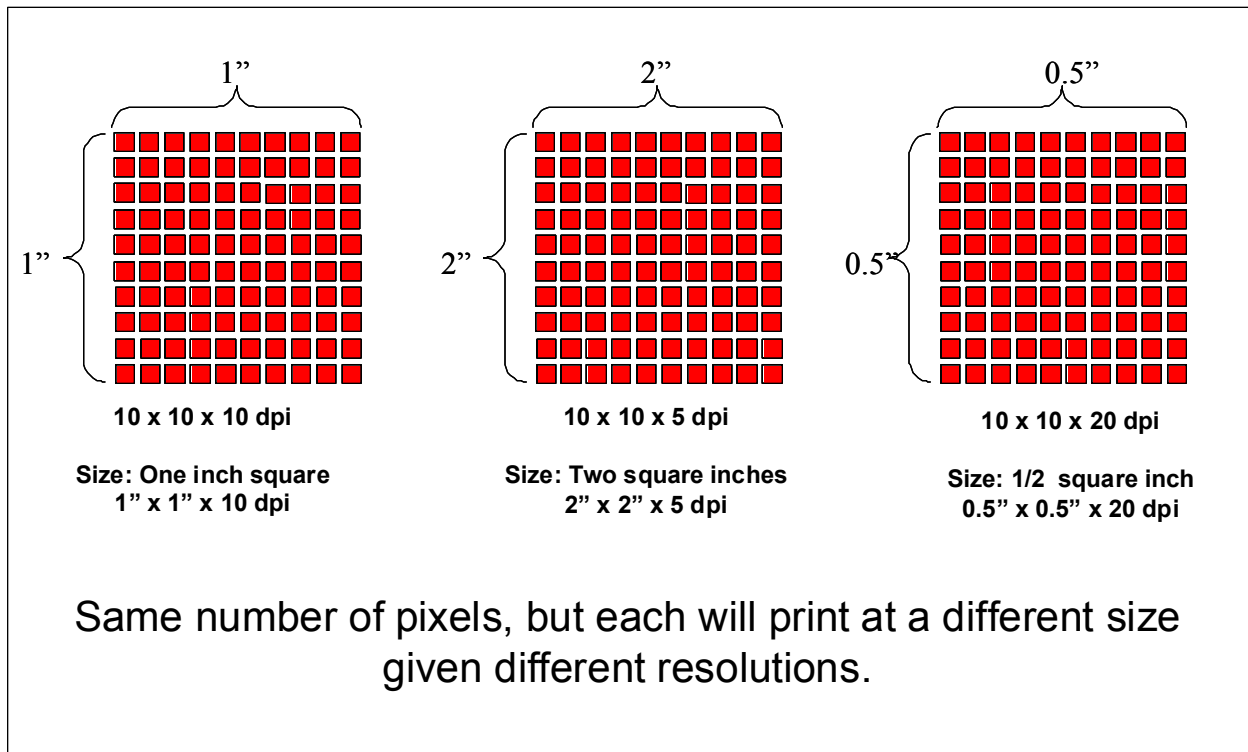


Figure 8-5: Demystifying the relationship between image dimensions and resolution

TIP: Inkjet printers (ALL of them!) only need 300 dpi in order to get the best results, whereas images destined for the web need only be 72 dpi.

DEFENSE FOR THE LAST TIP: Yes, you've read right. Despite massive advertising about their nozzles being able to distribute ink at 1200 dpi or higher resolution, all inkjet printers need only be fed a 300 dpi image in order for them to look their best.

Memory Cards

Just as there are hundreds of different film types that can be used with a 35mm camera, there are hundreds (okay, maybe dozens) of different types of Compact Flash (CF) and Memory Stick Duo cards that can be used with your A100. Here I will explain all the different permutations so that when you buy one it will actually work with your camera.

Compact Flash (CF)

Compact Flash cards come in a variety of capacities (from 32 MB all the way up to 8 GB as of this writing) and in a variety of speeds (1x write speed, all the way up to 80x (eighty times faster than the 1x speed). 80x cards (or faster!) are highly recommended because they allow the camera to work faster: turn-on and turn-off times will decrease, and of course they will allow more rapid shooting because images will be written to the card faster.

Almost all CF cards are “solid state”, which means there are no moving parts inside. The one popular exception to this is the “Microdrive” Compact Flash card which actually has a tiny hard disk spinning inside – a brilliant piece of engineering originally offered by IBM and now being manufactured by Hitachi. Microdrives offer the advantage of having a substantially lower cost per megabyte than their

solid-state brethren. On the downside they consume more power, tend to have slower write speeds, and (in my personal experience) are less reliable than their solid-state brethren.

The other thing CF cards will do is store your images inside “forever” without needing batteries. Most people will never use their CF cards in this way, however – the usual practice is to capture their images to CF cards, have them printed, transfer the images to a computer, delete the unwanted ones, archive the good ones to CD-ROM or DVD-ROM, and then erase the CF card so it can be put back in the camera and used again and again. CF cards will not last forever, though – the vast majority of them have been designed to be written to and erased about 100,000 times before they wear out. With normal usage that should last a person one and a half lifetimes. If I were to recommend a brand, based solely on my personal experience I would highly recommend Lexar and Sandisk – both have had a strong, reliable track record with me.

Memory Stick Flavors

Sony invented the Memory Stick back in 1998 as a proprietary format to use in all of their digital cameras. One of their hallmarks was just how small they were – in the beginning you could store up to 128 MB (!) on a tiny card smaller than a stick of chewing gum. (As of this writing 8 GB Memory stick cards are available, and the theoretical maximum you could store on a stick is 32 GB.) The Alpha 100 doesn’t accept a Memory Stick natively, though – you must use the Memory Stick to Compact Flash adapter which came with your camera.

But, my friends, you cannot just walk into a store and ask to buy a “memory stick”, for there are many flavors and only a few will work with your camera. Below is a brief run-down on the available choices. Only the items in black are compatible with your Alpha DSLR:

Name	Comments
Memory Stick	 This is the original format, which could hold up to 128 MB.
Memory Stick Select	This is identical to the original Memory Stick, except it had a switch on the back to allow partitioning. Up to four 128 MB memory banks could be selected. Rare.
Memory Stick Pro	A newer version of the standard; allows for capacities of up to 32 GB and a much higher transfer speed than the original.
Memory Stick with MagicGate™	MagicGate is a Digital Rights Management technology which essentially encrypts your data before storing it. It was designed to allow audio files to be downloaded and played on “authorized” players but not copied or shared. All “Pro” memory sticks are MagicGate compatible.
Memory Stick Duo Memory Stick Pro Duo	 Smaller cameras necessitated an even smaller form factor, and so the “Duo” format was born. Half the size of the original Memory Stick, they are available in most of the permutations listed above (“normal”, Pro, with and without MagicGate™) You

	will probably need an adaptor to use the Memory Stick Duo in devices that are designed to accept the original memory stick (such as inkjet printers, USB adapters, etc.) <u>Only the “Memory Stick Duo” or “Memory Stick Pro Duo” cards can be used with the Alpha 100’s CF card adapter.</u>
Memory Stick Pro Duo PSP	 This is identical to the Memory Stick Pro Duo mentioned above, only it is packaged for customers of Sony’s Play Station Portable game console. Interestingly, as of this writing, memory sticks with the PSP packaging were commanding a slightly higher price.
Memory Stick Micro	 Jointly devoped by Sandisk and Sony, the Memory Stick Micro is <i>one quarter</i> the size of the Memory Stick Pro. Make sure you check your pockets carefully before doing the laundry!!

Is there an advantage to using a memory stick over a Compact Flash card for image storage?

- ✓ As of this writing (August 2006), the average price for 1 GB CF and Memory Stick Pro Duo cards was nearly identical. The same was true for 2GB cards.
- ✓ Read/Write speed: I did a quick test with my A100 – shooting in 1/1000th of a second shutter speed, Large image size, RAW+JPG and continuous shooting mode, and DRO OFF, I filled up the buffer (shot three frames) and then timed how long it took for the buffer to empty out enough to take an additional frame. The time difference while waiting for the buffer to empty corresponded to the effective write time to the memory media.
 - Lexar 2 GB 80X CF card: 1.2 seconds before the next frame, and about 0.9 seconds between subsequent frames.
 - SanDisk Memory Stick PRO Duo (with MagicGate DRM) 256 MB card using the Sony Memory Stick Duo Adapter for Compact Flash slot: 2.1 seconds before the next frame and 2 seconds between all subsequent frames.

So from this brief test, while the costs are about the same, the Memory Stick Pro Duo using the adapter is half as fast as the CF card I had for testing.

Memory Card Corruption Issues

Alas, with new technology often comes even newer, unanticipated drawbacks. Although all memory cards (both CF and Memory Stick) have been designed for reasonably rough usage (and some expensive models have been introduced designed for *extremely* rough usage), there may be times when the

unthinkable occurs: several random bit errors occur within the card, resulting in “corruption” – the inability for the computers to reconstruct the image due to the missing or damaged information.

There are several software tools on the market designed specifically to try to recover from these kinds of errors. Two tools I can highly recommend are Photo Rescue™ at <http://www.datarescue.com/photorescue>. The other is Image Rescue™, which comes bundled with some Lexar CF cards (a bold move if you stop and think about it...). Both are worth every penny (about \$30) for recovering from corrupted media. Recovery is not guaranteed, though. You can try Photo Rescue for free to see if it will do any good before you plunk down any money.

[Note: I get no compensation for endorsing these companies. (At least not yet. :-))]

Dust on the Sensor

Here’s a subject that most DSLR manufacturers don’t like to talk about but it is essential that you know what to do in case it happens to you: If you change lenses a lot in the field, even if the shutter is closed while you’re doing it (you shouldn’t do it any other way, actually), dust can make its way to the sensor and then show up in the same place in every single shot.



Figure 8-6: Dust doesn't usually show up in your images unless you're shooting with small f/stops, like f/32. Above are five pictures (with the contrast enhanced so that the dust appears more visible); notice that at f/2.8 it doesn't appear at all, but as you make the lens opening smaller the dust begins to appear more blatant. You should check for dust at least once a month and remove it immediately when found; for it becomes more difficult to remove the longer it is there.

The Alpha 100 provides two features that may fend off dust – at least for awhile. The first is Sony's Anti-static coating on the sensor, put there so that the sensor doesn't actively attract dust via static electricity. The second is their Anti-Dust feature – basically, it shakes the sensor vigorously (using the same CCD-moving mechanism responsible for the Super SteadyShot) every time you turn the camera off.

What does dust look like? It depends on what f/stop you're shooting at. If you're shooting wide open (like at f/2.8) it hardly appears at all; whereas at f/32 it's quite clear and sharp (see **Figure 8-6**).

If you tend to shoot wide open all of the time it is very easy to be blissfully unaware of any dust buildup that may be accumulating on your sensor, but check it often because the longer it stays there, the more difficult it is to remove!

Here's a simple procedure for checking if your sensor has dust:

- ✓ Get a white piece of paper and any medium-range lens (such as 50mm).
- ✓ Put the lens into manual focus mode and set the focus to infinity. Set exposure compensation to +1 so the card comes out a little more white.
- ✓ Put the camera into Aperture Priority exposure mode and set the f/stop to the highest number you can (such as f/16 or f/22). (This makes the lens opening small, resulting in the dust becoming more visible.)
- ✓ Shoot one frame.

Then examine your image closely on the computer. It is recommended that this procedure be done at least once a month; more if you change lenses out in the field a lot.

What to do if you end up with dust? It turns out that, although there are a gazillion products on the market designed specifically to grab the dust off the sensor without making the problem worse, it is also the most delicate and high-risk activity you can do with your camera. On the other hand, there is a layer of glass on top of the sensor, so if you end up touching it you can't actually damage any pixels; the worst that can happen is you might scratch the surface (turning the dust problem into a relatively minor issue!) If you're unsure of your skills, have a professional camera repair shop do it for you.

The most popular dust elimination methods mentioned in the internet newsgroups are the "Copperhill Method" and the "VisibleDust" brush, both are described in detail at <http://www.earthboundlight.com/phototips/where-is-that-dust.html?search=ccd+cleaning&bool=and> (with links to where you can buy these products.) A relatively new product called "Green Clean" (which is comprised of both a vacuum and wet-and-dry swabs) is what I use myself and it is very well designed and straightforward to use (<http://www.green-cleanusa.com>). If your dust is quite stubborn and the above solutions don't work for you, I can also highly recommend Lenspen (www.lenspen.com) which I have used for years on all of my optical surfaces, and it turns out this dry cleaner works brilliantly on the sensor surface as well, and does not scratch coatings or other delicate surfaces.

To clean dust off of the sensor yourself using one of these tools, you have to take off your lens and put the camera into CLEAN CCD mode (**MENU → TOOLS (ORANGE) → 3 → CLEAN CCD**). This is a VERY SENSITIVE operation, for it lifts up the mirror and opens up the shutter, revealing the sensor for easy cleaning, but at the same time exposing it to potentially more dust!! MAKE SURE YOU READ MORE ABOUT THIS FEATURE AND HOW TO USE IT IN THE CAMERA'S INSTRUCTION MANUAL before you attempt to do this! It contains many valuable warnings and additional tips on how to clean the sensor properly. When you are finished cleaning the sensor, turn the camera off – this closes the shutter and returns the mirror to its normal position.

“Hot Pixels”

Sometimes a small dot on every picture isn't caused by a spec of dust; rather sometimes a single pixel can “go south” and remain a fixed color forever. Although it is not mentioned anywhere in the documentation, and although I haven't actually had the opportunity to test this myself, one of the online newsgroups revealed a very clever undocumented feature of the Konica Minolta 5D and 7D (and, presumably, the A100 as well) where at the beginning of a month when the camera is turned on, it will test itself for a stuck pixel, and if it finds one it “maps it out” in its memory, replacing its value with the average of all the surrounding pixel's values when it processes the image and writes it to the memory card. So if you suspect your camera has such a “hot pixel”, set the camera's date to the beginning of next month, turn the camera off and then on, and the problem should go away. (You can even move the date back to today once it's done.)

Summary of Chapter 8

Well, that wasn't so bad, was it? ☺ In this chapter we learned:

- A pixel is a very small Picture Element, not unlike a dot on a dot-matrix printer. The A100 has ten million of them on its sensor.
 - A 10 Megapixel image can produce an 8.5" x 13" picture at 300 dots per inch.
 - RAW image files are comprised of the raw data pulled right off the sensor and stored on the card, along with any parameters (contrast, color balance, etc.) so the image tweaking operation can be done in the computer rather than in the camera. RAW is the preferred file format for professionals.
 - JPG files are highly compressed, and most people in the world can't see the difference between printed pictures shot in RAW or JPG. JPG files are ideal for vacations since three to five times more .jpg pictures can fit on the same memory card.
 - When determining final print size, the image dimensions AND the final print resolution must be taken into account.
 - Compact flash and Memory Stick memory cards were discussed. Each may experience corruption problems from time to time. Two products designed to rescue such corrupted images were discussed.
 - Dust and "Hot Pixels" – What to do if spots show up on every picture you take in the same place.
-

Chapter 9

An Introduction to Picture Motion Browser Software

The most useful functions described in the least amount of time.

In this chapter I will provide a brief introduction to software that came with your camera on CD-ROM. The most useful features will be introduced:

- Setting up the software
- Thumbnail viewing and organizing images
- Image editing (cropping, contrast, color balance, sharpness)
- RAW image file conversion

Introduction

All the great photographers of the past used to say the same thing: “Taking the picture is only the first step in getting great images”, and then they’ll usually go on and on about the hours they spent in the darkroom, mastering all the variables of making a good print like developing temperature, chemicals, papers, dodging & burning... you get the idea. The same is true with digital images – taking pictures really IS the first step, despite tremendous advances in metering and dynamic range optimization, the vast majority of images could benefit from a little tweaking. Fortunately the post-processing that used to take place in the darkroom can now be done far more quickly and easily on your home computer. And things that were horrendously difficult even in a darkroom (like adjusting the “curve” which will be described later in this chapter) are hideously easy in the digital realm.

Normally when you shoot color negative film, standard tweaking like lightening, color balance, and contrast tweaking is done for you at the 1-hour photo lab. But now, thanks to the digital imaging revolution, you get to make all these adjustments yourself! ☺ This is actually good news, for it means the quality of your images are not at the mercy of the person (well-trained or not) working the 1-hour photo machine. Usually the tool of choice for computer manipulation at home is Adobe Photoshop; but that can cost upwards of \$600 dollars. Fear not! The folks at Sony have generously provided two pieces of software that performs Photoshop’s most-used functions at no charge to you!

The first software package, called Picture Motion Browser, provides an easy way to organize, view, and tweak your images. The second package, called Image Data Converter SR, provides another compelling feature which can be found in precious few other software packages: It knows how to read and display (and post-adjust) the .arw RAW files – the highest-quality image format that your camera can capture. (RAW files were discussed in Chapter 8.)

Chapter 3 covered the steps required to just print and/or store your photos once they were taken. This chapter discusses another path you can take *before* printing – in fact, it is quite common for people to tweak their images and then send them to their local 1-hour place to have them printed, yielding the best of both worlds – complete control AND good-looking, long-lasting prints. This chapter will serve as an introduction to the software, by walking you through the most common tasks, what they do and how to use them. Being an introduction, it is not meant to be a thorough treatise on the subject. After you have familiarized yourself with the basic operation of the software you may wish to refer to the Picture Motion Browser’s electronic instruction manual to learn more about its capabilities.

By necessity, this chapter assumes a small degree of competence in using a personal computer. You should know how to install software, and how to navigate to different directories and subdirectories. And because I don’t have access to a Macintosh (sorry!), all screen shots used in this tutorial will be from Microsoft Windows XP. If you aren’t yet up to speed on these basic computer techniques, then stick with the contents of Chapter 3 – it was written specifically with you in mind.

Sony’s Picture Motion Browser software performs three primary functions:

1. It automatically moves the images from your memory card (once inserted to your computer) onto your hard drive.
2. It allows you to quickly find and browse through the images on your hard drive, sorting them into date order and organizing them in a very human-friendly way, and
3. Gives you very basic tools for tweaking the image’s appearance, sharpness, cropping, and color balance.

The second piece of software, Image Data Converter SR, is designed for opening and manipulating RAW files (those with a .ARW extension) and provides considerably more tools for image editing and

exporting to a common file format, such as .jpg or .tif (also discussed in Chapter 8). The Image Data Converter SR software will be covered later on in this chapter.

After you Install

After you install the software there is one “tweak” that I highly recommend making before you begin. This has to do with the program’s “automatically move images from your memory card to the hard disk” feature. If you look in the lower-right-hand-corner of your computer screen you will find a new icon (see within yellow circle in **Figure 9-1**). Right-click on it, then choose “Import Settings” and then “Digital Still Camera (DCF) Format...” and the pop-up window shown in **Figure 9-3** appears.



Figure 9-1: Right-click on this new icon after the software is installed and choose “Import Settings” → “Digital Still Camera (DCF Format)...” to change the photo import behavior.

If you’re not that familiar with how to use Windows Explorer (for Microsoft) or the Finder (for Apple) and don’t know how to delete files off of your memory card using the computer, then I recommend you check the 2nd box, which essentially tells the software “Delete the pictures off of my memory card after they’ve been transferred to my hard disk”. It can be a nice time saving feature.

When you start up the software for the first time, it will ask you to “Register Viewed Folders”. This is a confusing request, for it is NOT asking you to register the software! What it is trying to say is “What

would you like your default image folder to be?” Most people will choose My Documents → My pictures (which is the default).

Automatically Transfer Your Images

So the first thing the Picture Motion Browser software does for you is automate the task of uploading images to your hard drive. After your software has been installed, just insert your memory

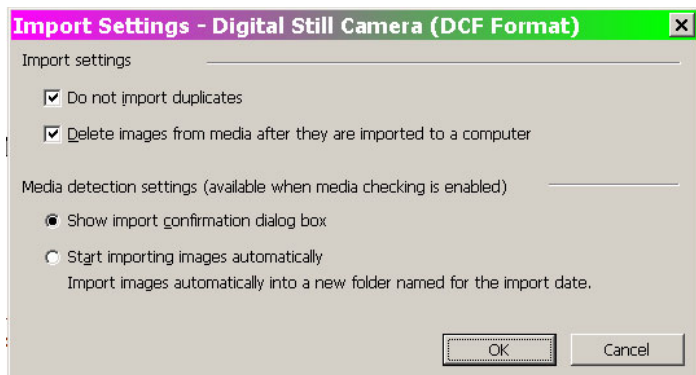


Figure 9-2: DCF Format screen. When you check the 2nd checkbox and click “OK”, your pictures are automatically deleted from your memory card after they have been transferred to your computer.

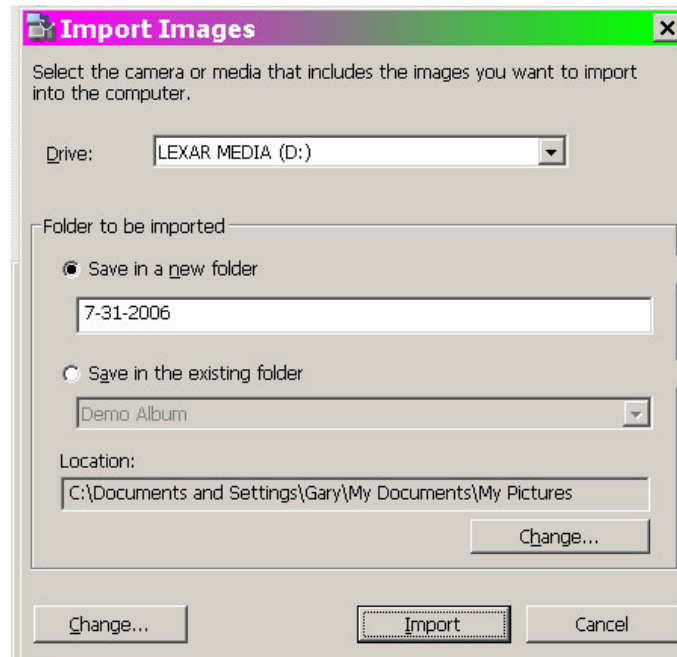


Figure 9-3: When you plug your memory card into your computer, this dialog pops up; asking you into which directory you would like your images copied.

card into your computer, and the Import Images window will automatically pop up (**Figure 9-3**). The system downloads your images into the My Documents → My Pictures → [Whatever you

specify in the popup window] directory. As you can see in the figure, the system recommends downloading into a newly-created directory called 7-31-2006 (the date this example is being written). Because this software is heavily date-oriented (I'll show you what I mean by that in the next section), go ahead and accept the suggested values by pressing the IMPORT button.

Browse your Images

Once you start the Picture Motion Browser software you'll see something similar to **Figure 9-4**. The main window presents two main sub-windows: The thumbnail display window (the largest one), and the left "navigation" panel which allows you to see where your pictures are in two different ways. The first way is the "folders view" where you select a folder on the left and you see all the pictures in that folder on the right

The other (perhaps somewhat more entertaining) way appears

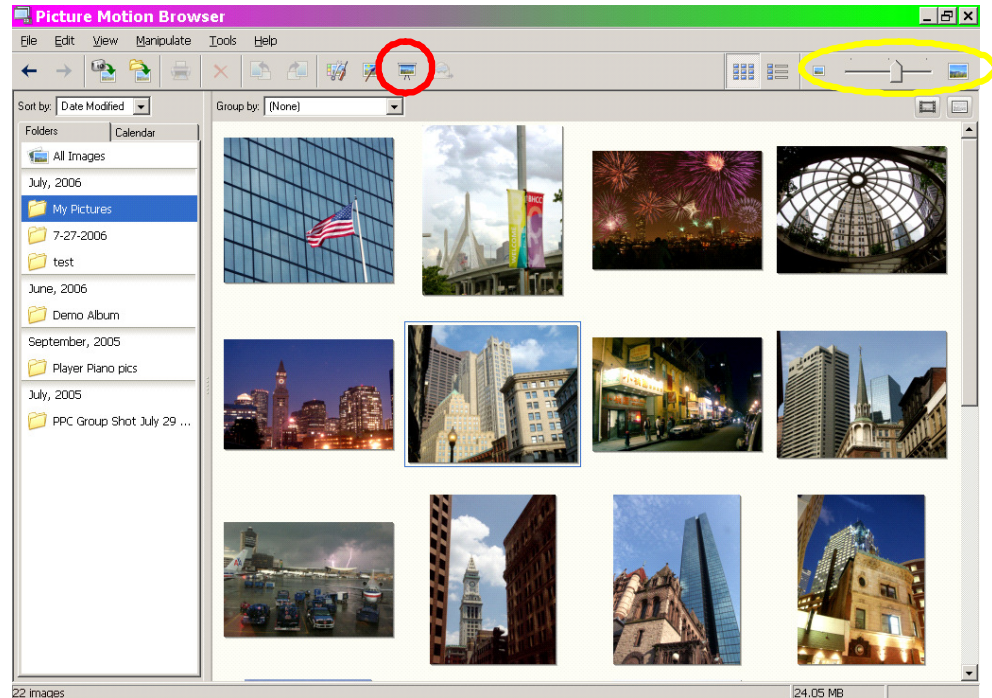


Figure 9-4: The Picture Motion Browser thumbnail sorting screen. Shots taken in RAW mode will have a small icon in the lower right-hand corner.

in **Figure 9-5**. This view uses a calendar paradigm, where all of your pictures (even those in different folders) are displayed chronologically, laid out on top of a calendar grid. Clicking on the years in the left-hand navigation area gives you a months-at-a-glance peek at your picture-taking activity so you can quickly zero-in on the images you're looking for. (And I must say, I find this feature very handy.) Clicking on any image will take you "closer in" and let you easily see other pictures taken in the same time frame.

Regardless of what view you're in, you can control the size of the thumbnails by moving the slider in the upper-right-hand corner (The yellow circle in **Figure 9-4**).

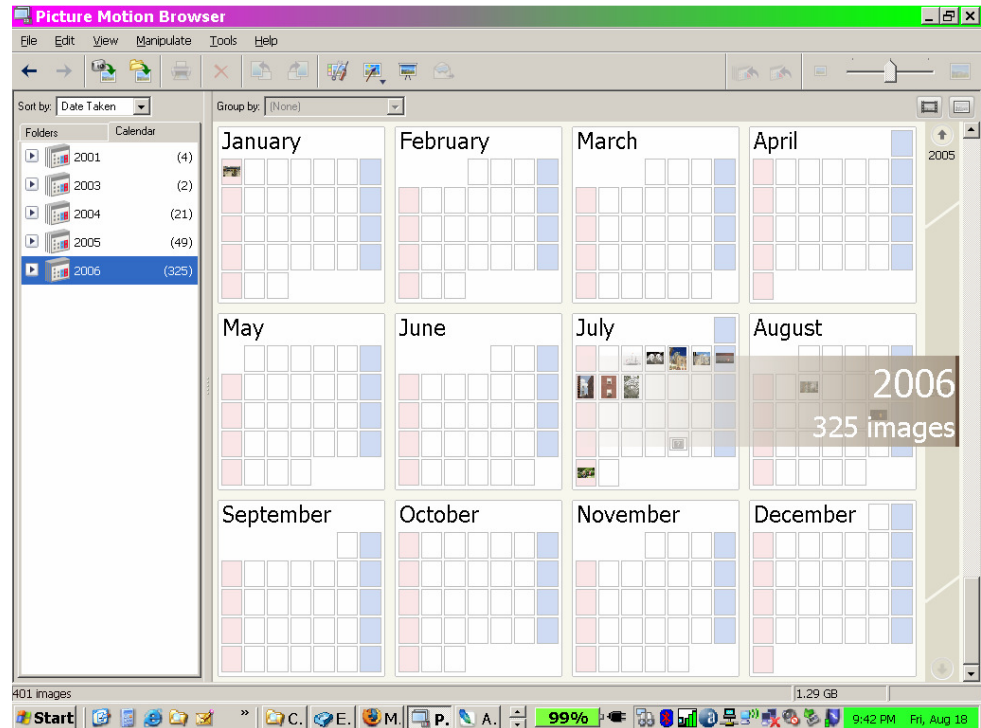


Figure 9-5: Picture Motion Browser's calendar view. Very entertaining, and a quick way to find an old shot.

Never Overwrite your Originals! The single most important rule of image editing is *always save your changes as a different file from the original*. There have been many times in my professional life when I've had to go back to an original file after modifying it – the customer wanted it cropped differently, or the required size was changed and the applied sharpening was not compatible with the new size. Just as you should keep regular backups of your computer files “just in case”, always keeping your original file intact means never having to say “This is turning out awful! I wish I could undo all those changes I made!”.

The other useful thing you can do at this point is get a GOOD look at your images via the “Slide Show”. Just click the “Slide Show” icon (Red circle in **Figure 9-4**) and sit back and enjoy. The images change every few seconds; but you can also use “PgUp” and “PgDn” (Page Up and Page Down) keys to go back or go forward. Hit the “ESC” (Escape) button to go back to thumbnail viewing mode.

Probably the greatest value of the thumbnail view is you can quickly select your “reject” images and hide (or delete) them all at once. To do this, hold down the CTRL (“Control”) key on your computer and start clicking on the images you don't like. Once all the images are highlighted, right-click on any one of them and choose “Hide Images” or “Delete”. (You can see all hidden images later on by clicking on VIEW → SHOW HIDDEN IMAGES.)

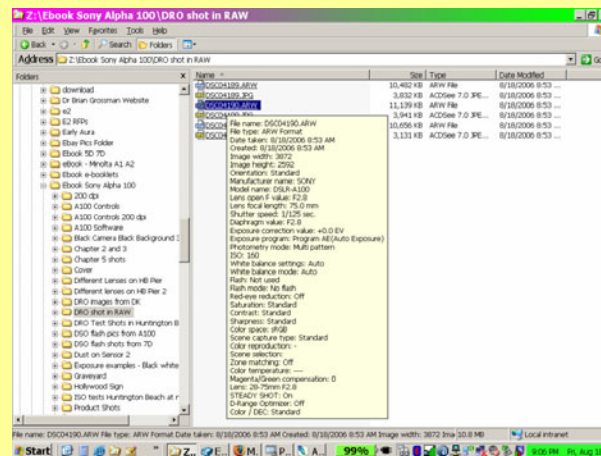
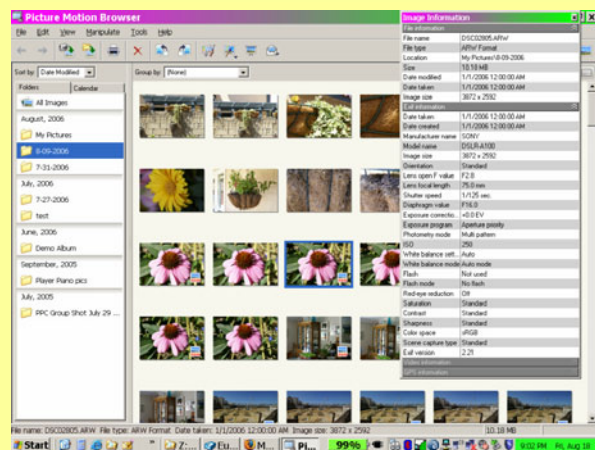
Below the menu headings near the top of the window (FILE, EDIT, VIEW, MANIPULATE, TOOLS, and HELP), there is a row of icons. What do they do? Well, you can easily find out by “mousing over” (use the mouse to put the arrow over) each of these icons. When you do so a brief 1-line description of what these buttons will do when you press them appears at the BOTTOM of the screen.

Here's another useful feature in thumbnail view: Right-click on an image and select IMAGE INFORMATION. A new window opens up showing you just about everything you wanted to know about your camera's settings when you took the picture. This is called "EXIF" information, and it is information about the camera's settings (like shutter speed, f/stop, ISO, and other settings) which the camera writes and stores into the .jpg or .arw (Raw) file. While some image editing programs only show you basic things like shutter speed and f/stop, the Picture Motion Browser software shows you almost all of the camera's settings at the time the image was taken, including the exposure and flash compensation settings, the color balance setting, ISO sensitivity, the program mode (sports program, aperture priority, etc.), even the focal length of the lens! In the old days, photographers who were still learning would dutifully keep a notebook of the camera's settings for each shot they took, and then study them carefully when the pictures came back to learn what variable worked in what scenario to facilitate learning. With digital, not only do you get the feedback immediately, but you also are saved the hassle of writing down the camera's settings for each shot! They are automatically recorded for you, and saved within the image file.

TIP: You can also see much of the EXIF information while the image is still in the camera. When in Playback mode, press the up-arrow key on the controller. This enters "Histogram display" mode, and shows you the image, histogram, and some of the camera's settings (like shutter speed and f/stop) – all while still in the field.

TIP: You'll notice I said that EXIF records *almost* all the image information. There are some settings (like whether Super SteadyShot was on or off, or whether DRO was turned on) which are recorded in the image but no software I have tried to date (including Sony's software) can extract. (I know it's there; since it appears in the histogram playback screen of the camera.)

However, if you have the Sony Image Data Converter SR software installed in Windows XP, hovering over an .ARW file while browsing in "My Computer" reveals more information about the shot than what is typically displayed with image editing software!



Sony's software doesn't show it.....but hovering over the .arw file shows more info! (Zoom in to see the differences.)

Basic Editing

The Picture Motion Browser software provides the ability to perform the most common image tweaking operations: Contrast, Brightness, Curves, Sharpness, Cropping, and Color Balance. For this tutorial, I've selected an image taken by another photographer using a competing camera. It's a little dark and a little on the yellow side; it's also got too much "dead space" on the bottom. Our mission is to take this picture from one that looks good to one that looks GREAT.

Once I locate the image in thumbnail view and double-click on it, the editing screen as shown in **Figure 9-6** appears. (To get back to thumbnail view, just hit "ESC" (Escape).)

Rotating and Cropping

You will probably never need to rotate an image, since the Alpha 100 automatically records whether the camera was held vertical or horizontal when the image was recorded, and the Picture Motion Browser software knows how to read this information and automatically rotates the image for you.

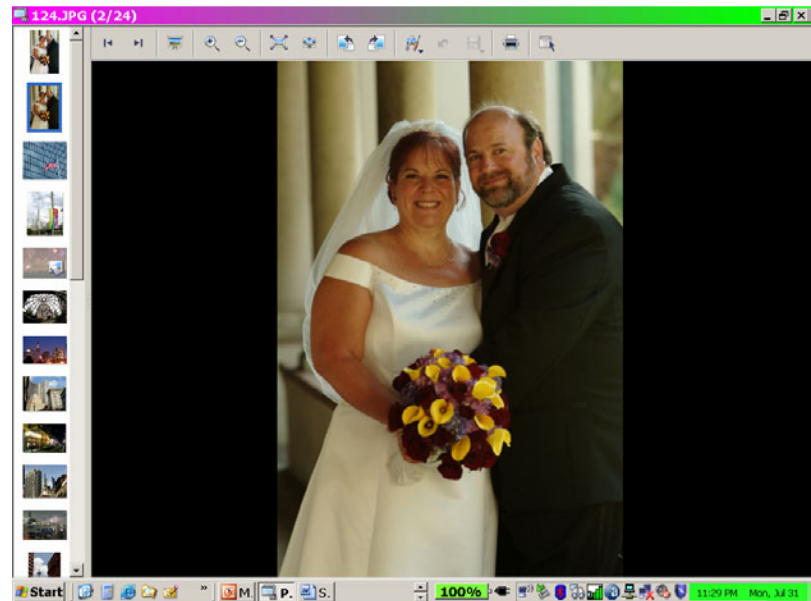


Figure 9-6: The Editing Screen

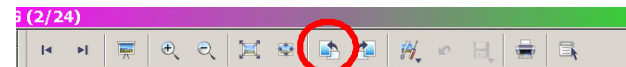


Figure 9-7: The Rotate Image Counterclockwise button (circled in red)

But in case you ever have to, the “Rotate Image Counterclockwise” button is shown in **Figure 9-7**. (There is also a “Rotate Image Clockwise” button right next to it, in case you ever need that.)

The next step is to crop the image (so the rules of composition from Chapter 6 can be more closely adhered to). To perform this task (and the majority of other editing tasks) you’ll need to click on the EDITing Options tool (**Figure 9-10**). Then select “Trimming” (another name for “Cropping”). The image appears with a thin red border around it. Bringing the mouse cursor anywhere along the border will change the cursor to a double-headed arrow, indicating in which direction you can drag the frame.

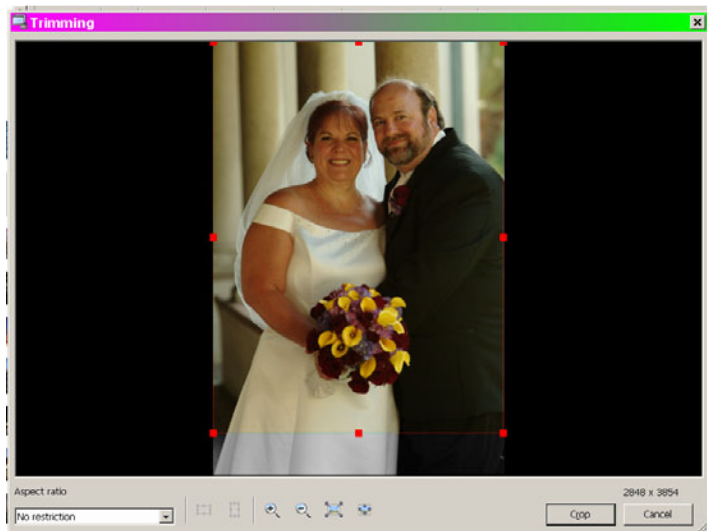


Figure 9-8: Cropping two inches off the bottom.

In this case I dragged the bottom border up two inches, essentially cutting two inches off the bottom. (See **Figure 9-8**.) Hit “Crop” when you’re done.

So your image has been cropped, but it still hasn’t been saved yet. Once you try to do something else (like moving to the next picture, or hitting ESC to go back to thumbnails mode) you’ll be asked to save the changes. In keeping accordance with the photographer’s mandate of “Never Overwrite Your Originals” ALWAYS CHOOSE “SAVE AS...” when asked if you want to save the cropped image (then specify a different file name – the program will store the modified file in the same directory as the original).

Adjusting the Tone Curves and the Color Balance

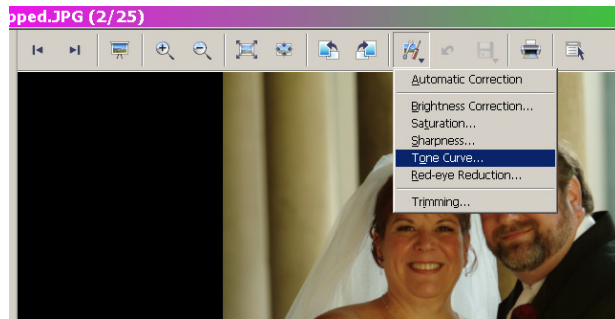


Figure 9-10: The Editing Options screen.

The “Tone Curves” tool is, hands down, the single most useful tool ever invented for image adjustment. It is, in fact, much more powerful than the Brightness Correction tool (which in my mind is not too useful). But most people don’t use it because they don’t understand it.

Let me take a moment and explain how it works – it is well worth the investment.

When in View / Edit Image... mode, select “Tone-Curve” from the editing options menu (**Figure 9-10**). You’ll see a new screen as shown in **Figure 9-9**. Notice that in behind the straight line you also see something that looks like a histogram (explained in Chapter 5 starting on page 188). (Recall that the leftmost part of the histogram represents the darkest values that the camera can record, whereas the rightmost part represents the brightest values the camera can record. Ideally the darkest and lightest values of your image should fall perfectly within this range.) What’s

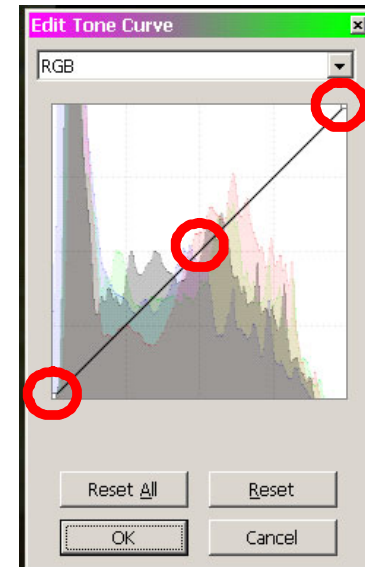
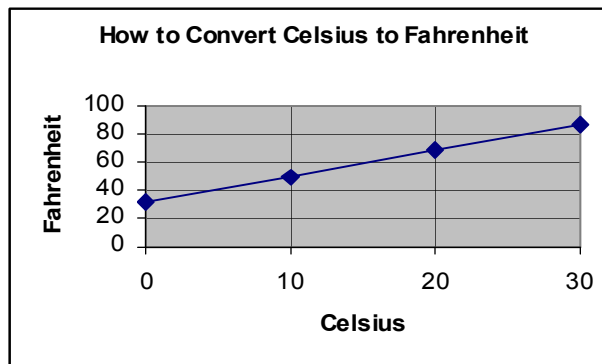


Figure 9-9: The Tone Curve tool. The straight line can be moved by grabbing and moving it with the mouse. The red circles represent the most common places to grab the curve.

different here is that it's showing you THREE different histograms – one for each color (Red, Green, and Blue) all superimposed on top of each other. This will come in handy as we correct the color balance later on.

What does the straight line mean? Think back to the math classes you took decades ago, and how you were able to plot a set of points on a graph. Remember this?

Celsius	Fahrenheit
0	32
10	50
20	68
30	86

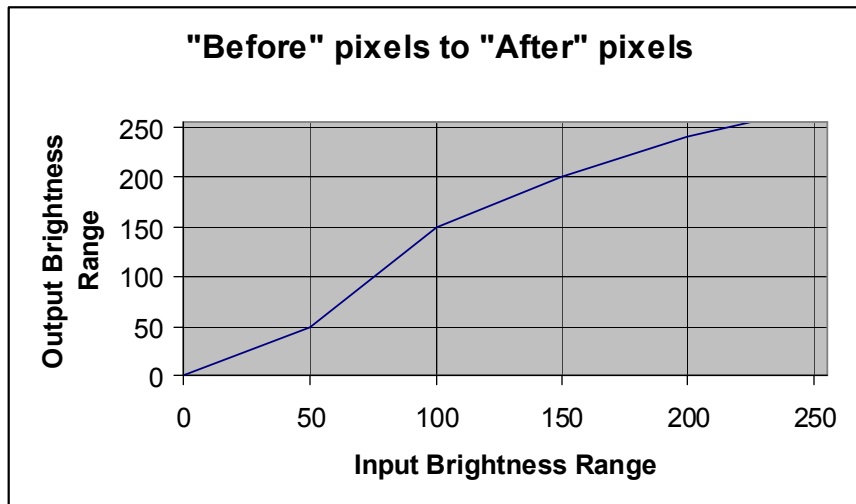


So to convert, say, 25 degrees Celsius to Fahrenheit using this graph, first you find “25” on the Celsius scale, go straight up until you hit the line, and then look to the left to see the new value on the left axis. In this case a visual inspection says that the answer is a hair less than 80 degrees. (The exact answer is 77 degrees Fahrenheit.)

The image curve tool works exactly the same way, except instead of using temperature, the horizontal axis is the range of values BEFORE the adjustment, from 0 (darkest) to 255 (brightest), whereas the vertical axis is the range of values AFTER the adjustment. (You aren't shown the numbers, but 0 to 255

is what's being shown.) And instead of using the line to TELL YOU what the new value is, YOU CAN CHANGE THE LINE TO TELL THE COMPUTER WHAT THE NEW VALUES SHOULD BE.

Want an example? See below:



So if you were the computer and you were being asked to adjust the image using the Tone Curve, first you'd look at the horizontal axis, one number at a time. "Okay, every time I see a pixel with a brightness value of zero in the input, I'll show it as a brightness value of zero in the output." Also, "Every time I see a pixel with a brightness value of one in the input, I'll show it as a brightness value of 1 in the output." As you can see from the graph all brightness values of 1 through 50 will remain unchanged in the output.

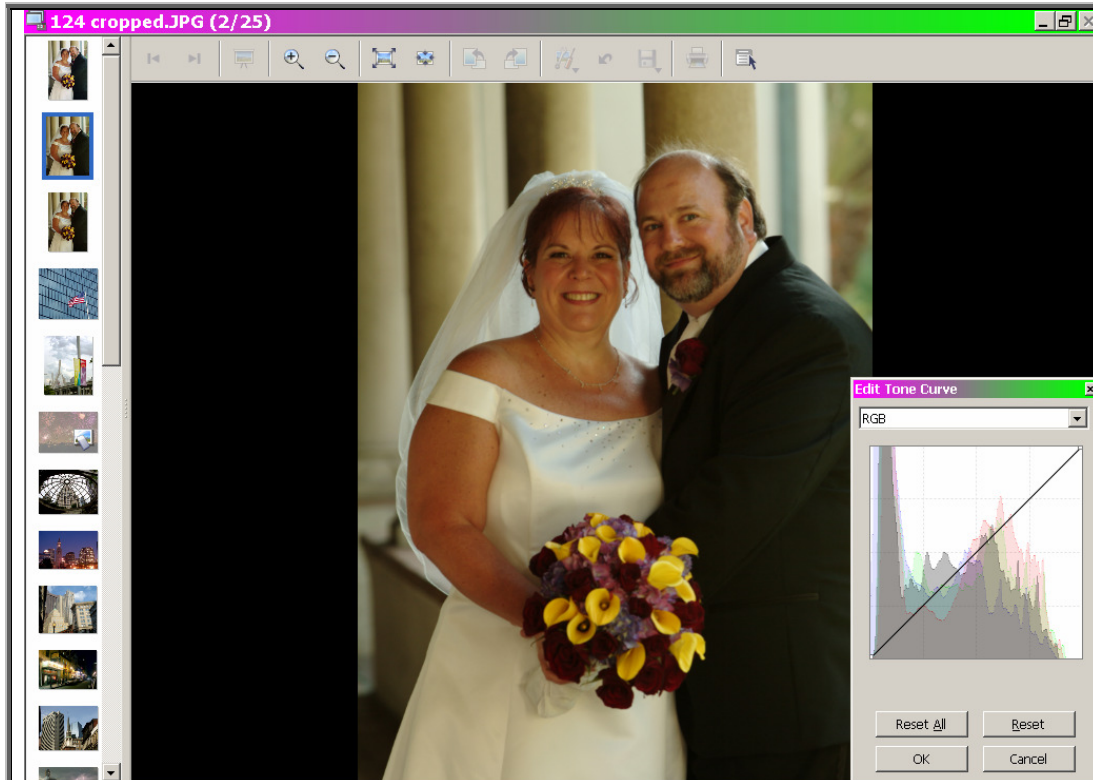
But wait! Notice that for an input of 100, the graph says to show it as 150 in the output! (In other words, make this particular midrange value *brighter* in the output.) In fact, the curve says to make other input values ranging from 50 to about 225 brighter than what was in the original image. See what's going on? The tone curve specifies how you want the image to be adjusted, and you can specify separate operations for the dark, mediums, and light parts of the image!

Above 225, the upper-right part of the tone curve is flat. Again, if you were the computer, you'd interpret this as being "Every time I encounter a pixel whose brightness value is between 225 and 255, I'll represent it as 255 in the output image – thereby converting all of these pixels into the brightest white I can represent".

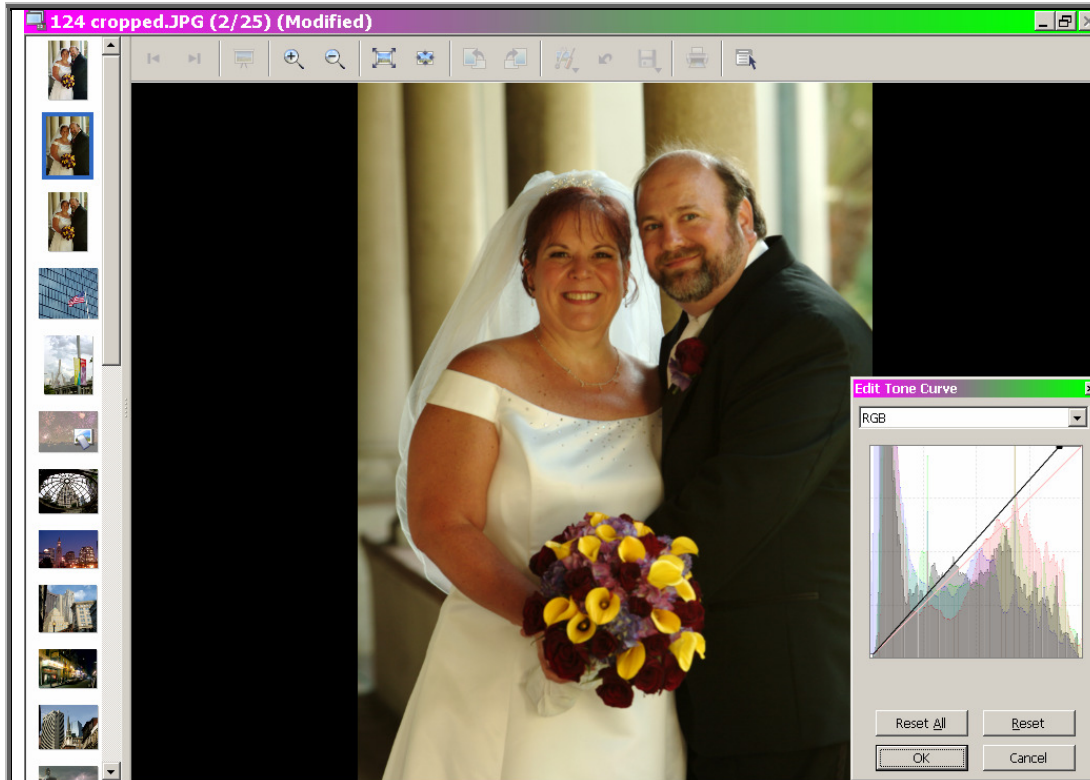
An example is needed right about now. So let's try a quick exercise to increase the contrast. To simplify the above, the leftmost and rightmost red circles in **Figure 9-9** will allow you to do this:

- Moving the upper-right-hand corner of the line (in the rightmost red circle) to the left will make the whites whiter.
- Moving the lower-left-hand corner of the line (in the leftmost red circle) to the right will make the blacks blacker.
- Moving the center red circle upwards will make the overall image brighter, without affecting either the blackest blacks or the whitest whites.

Okay, so back to the wedding image. Follow the sequence below to see all the different steps.



This is how it looks at first. Notice how the histogram is heavy on the left side, indicating that there is a lot of black in this image. There are a lot of mid-tones too, and hardly any white. Our goal is to spread out the existing histogram to better fill out the left-to-right dynamic range.

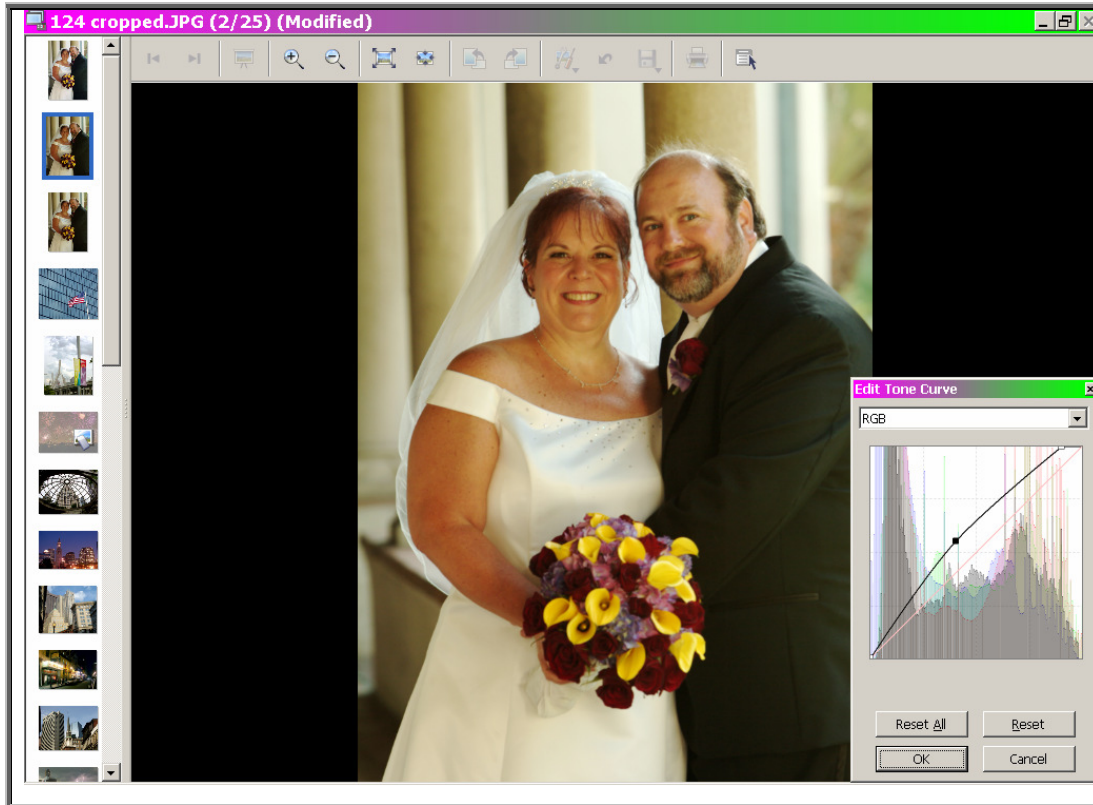


The first step is to make the whites whiter by moving the top right end of the line a little to the left.

This essentially says "The brightest values of my image are here. Expand everything to fit within this space.!" The histogram expands to the right as I do this.

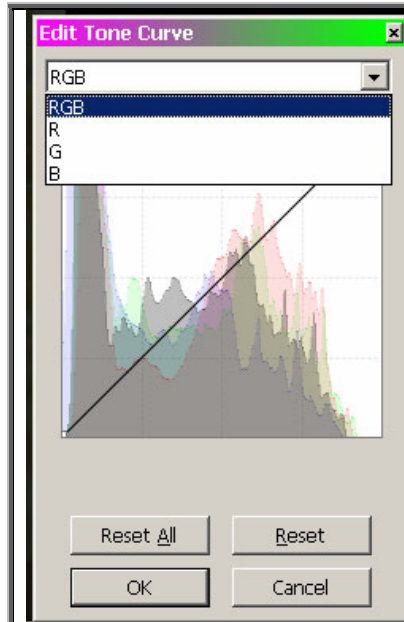
I will leave the blacks alone – they are already on the left side of the histogram, where shadows ought to be.

It's a nice start, but we need more.



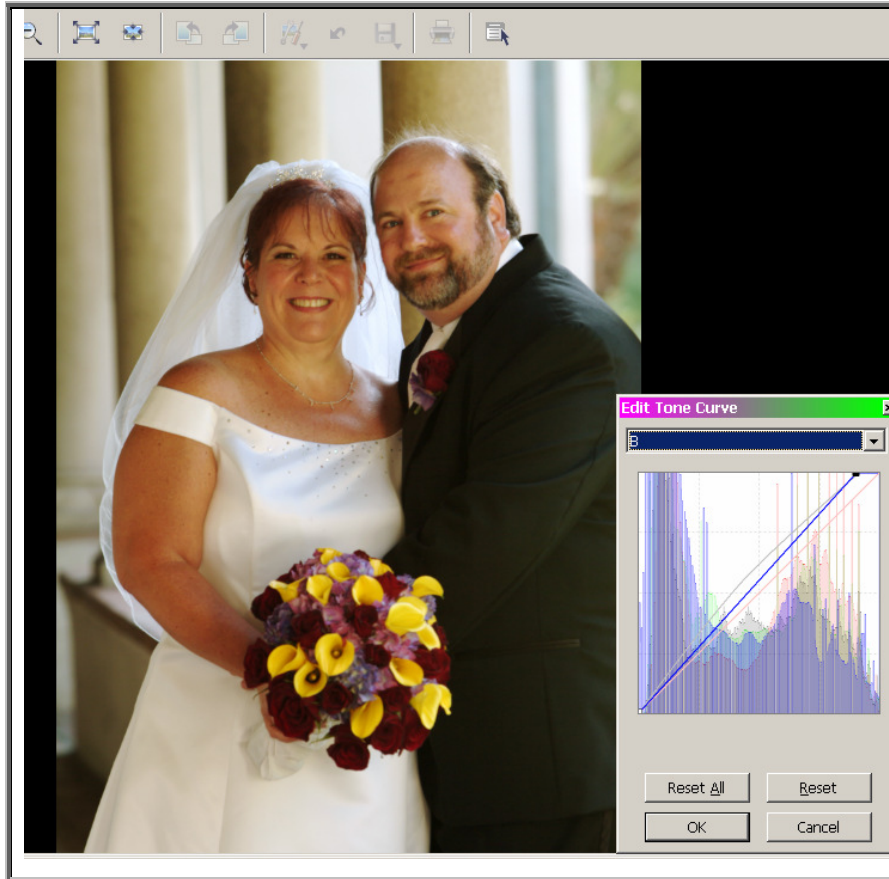
Now to increase the overall brightness by moving the center of the line upwards. This function works on the midtones only, leaving the whites and blacks where they were.

Don't hit OK yet! We're going to use the same curves tool to adjust the color balance!



Next let's adjust the color, which to my eye is too yellow. It is done with the same Tones Curve tool we just used to adjust overall image brightness and contrast.

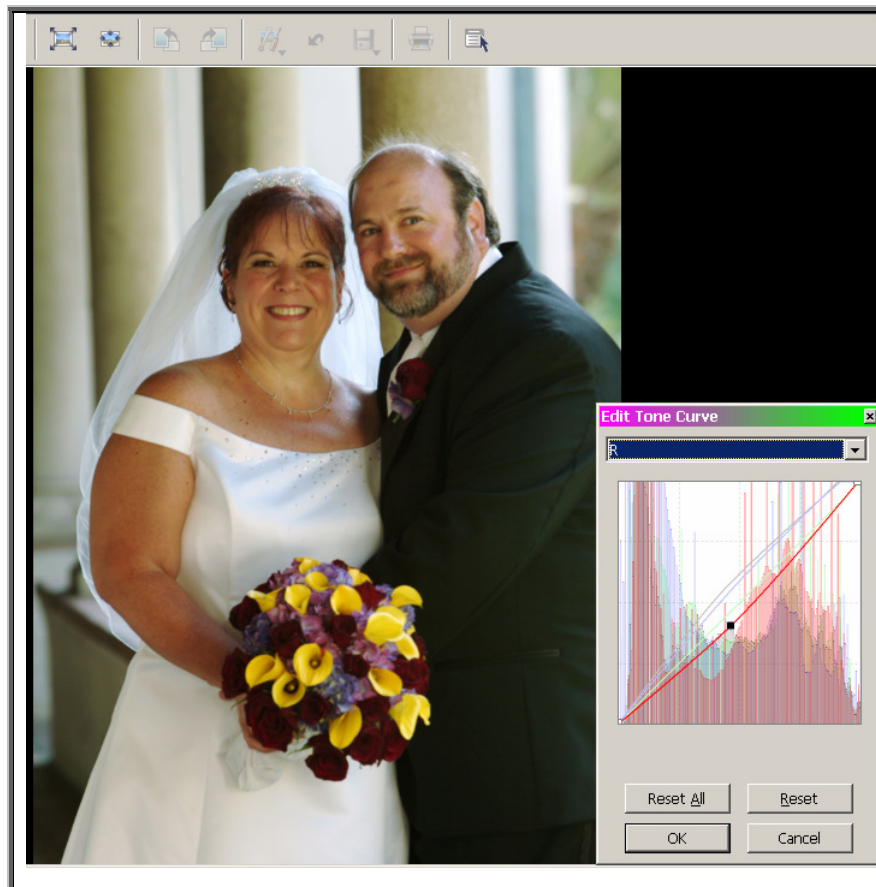
First, I'll choose to adjust only the Blue by choosing "B" from the drop-down list.



Now here's the unintuitive part. Grabbing the upper-right-hand corner of the (now Blue) line and moving it to the left (as shown) will give the image more blue (i.e., less yellow).

(Had I wanted to ADD more blue, I would have taken the upper-right of the line and dragged it down slightly.)

It's better, but I should lessen the red a little too.



Here I selected the red channel, and grabbed the middle of the curve and dragged it down a little (giving it less red).

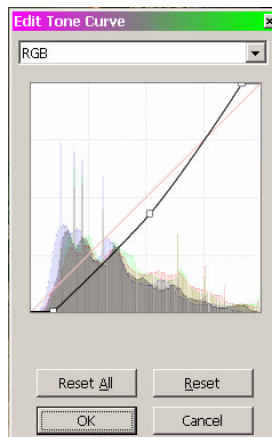
Then I hit "OK", and then "ESC" to get back to thumbnails. Only then did the system prompt me to save the file. I did a "Save As..." and gave the file a new name.



The original image and the finished product so far – a worthwhile improvement, wouldn't you say?

This is just a mild correction – very typical of what you'll be working with.

(Note: The right image looks perfect on my computer screen, but looks a little *too* red and yellow in the printed version of this book. Now do you see the importance of color matching and color space?? ☺)



Another example – this time adjusting the left, right, and middle parts of the curve. This is a very controlled way of adjusting contrast.

Most of the time just adding more blacks (moving the lower-left of the curve to the right, as shown here) can make a blah snapshot look more pleasing.

When adjusting color balance using the colored histogram technique, remember the color relations:

- ✓ The Blue curve can adjust both blue and yellow (blue is the opposite of yellow on the color wheel.)
- ✓ The Green curve can adjust both green and magenta.
- ✓ The Red curve can adjust both red and cyan.

TIP: The Picture Motion Browser's Editing menu does have an "Automatic Correction" function which tries to make contrast and color balance adjustments for you. But just as the A100's computer cannot possibly know what you have in mind when taking your pictures, so too are the algorithms used in the Sony software. (This is a diplomatic way of saying "It doesn't work very well!") If you're still reading this chapter, you'll probably want to do all the adjustments yourself and not rely too heavily on the automated features. Your final product will no doubt be more to your liking!

Sharpness

The perception of sharpness is a complex subject! But in a nutshell, the Picture Motion Browser software has the ability to tweak an image to have it *appear* to be sharper under certain conditions. This can be handy to correct for not-so-perfect focusing, and it is almost always required to restore the original sharpness if you change the image's size (via the Manipulate → Resize and Save menu function). But beware! If not applied properly, it is easy to overdo and actually diminish the quality of your photos. (Now would be a good time to re-read the disclaimer at the beginning of this chapter:

Never Overwrite Your Original Images so you can go back to them later should too much sharpening occur.)

But sharpening can get tricky because there is no universal setting that will work well in all circumstances. The proper settings to apply depend on the content of the image (lots of fine detail or vast detail-less blue expanses), how large it will be printed, and how far away the observer will be standing when viewing it. A different set of settings altogether would be needed if the image is intended to be viewed on the web.

And now, Dear Reader, we run into a self-referential problem: In order to properly demonstrate the effects of sharpening, the demonstration image needs to be optimized for the size, medium, and viewing distance in which it will be viewed. But this book is being distributed 3 different ways! Some of you will be viewing this book on a computer monitor (~18" at 72 dpi), some of you will print it on your inkjet from a .pdf file (24" at 300 dpi), and some of you will order it in hardcopy from a print-on-demand micropublisher (24" at 2400 dpi). It is impossible to optimize a sample image so it will appear to be noticeably sharper at all three resolutions and viewing distances! So my sample images may not look sharp at all, and you might conclude that it's not worth the trouble. Don't let this happen to you! The tool is useful and well worth getting to know.

I can point you to an example from my website, however. This method allows all viewers to see it the same way. Near the last chapter in my 'blog' documenting my six-month stay in China in 2003, I answer viewer mail, and the answer to the first question shows an example of an image that was tweaked for contrast and color AND used a sharpening feature optimized for web viewing. You can find this page at <http://friedmanarchives.com/China/Web/Chapter21/Chapter21.htm> In this example the sharpening was done in Photoshop, but the Picture Motion Browser software can achieve similar results.

One of the other great difficulties in experimenting with the sharpening tool is that it's nearly impossible to tell how the settings will affect the final print by looking at the image on the computer screen (regardless of how much you zoom in on the image to observe the details.) That having been said, I still encourage you to experiment and get a feel for the variables and the effects of this indispensable tool.

So, to adjust the sharpening parameters, while in View / Edit Image... mode, choose Edit → Sharpness... from the top menu (**Figure 9-11** top). It might help tremendously to zoom in using the “magnifying glass with the plus sign” icon, and then click and drag anywhere on the image to bring the desired subject to the center.

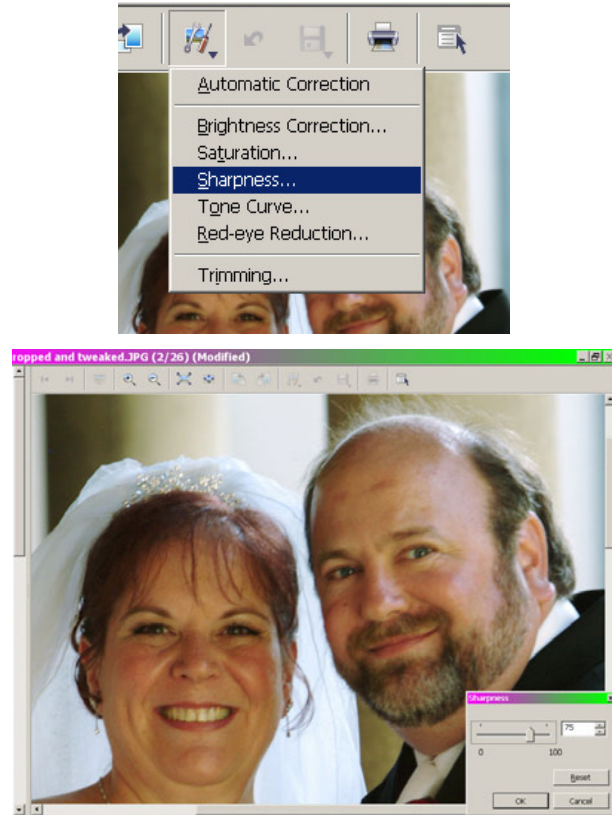


Figure 9-11: The sharpness function, and the screen it brings up.

This is the first piece of software I've ever tried that had only ONE variable to control sharpness. Sony allows you specify sharpness somewhere between 0 and 100%. Although it is impossible to give rules of thumb for the settings (since the content of the image plays such an important role), I've found that a good starting point for making 4x6" prints is 75% sharpness.

But by all means – experiment and familiarize yourself with this tool!

What's in a Name? Since the 1st commandment of image editing is “Never overwrite your originals”, is there a useful way to name your edited images? I have found a naming convention that works very well for me. Basically, I use a descriptive title (including names of people so I can find them easily via Google desktop search), followed by the size, resolution, and the original file name (so I can easily go back to the original should I ever need to do so). For example, a group shot might be named “Lena Louisa and Julia 8x12 300 dpi DSC02843.jpg”.

Of course, you can use any system that suits you, recording any variables that you feel are important. Just be aware that operating systems like Windows don't allow certain characters in filenames (like \, “, #, *, |, :, <, >, or ?). “&” should also not be used if you'll be uploading your images to a Unix-based web server.

Printing

This one's easy. While editing an image you just invoke FILE → PRINT... and then tweak the intuitive parameters that come up on the screen (Figure 9-12). What could be simpler?

Other Editing Software

While the Picture Motion Browser software has the capability to perform the most common image tweaking functions, some of you might prefer (and already be familiar with) more powerful editing software such as Paint Shop Pro, ACD See, or Photoshop. The good news is that these programs can be invoked from within Picture Motion Browser, thereby giving you the best of both worlds – the very useful temporal-based thumbnail viewing software, and more powerful image editing software.

Here's how to make Photoshop the default external editor for Picture Motion Browser:

- ✓ Go to the top menu and select Manipulate → Open with External Program → Select External Program. A list of all programs registered in your computer appears.
- ✓ Choose your favorite image editing program. (In my case, I'll choose Adobe Photoshop CS2).

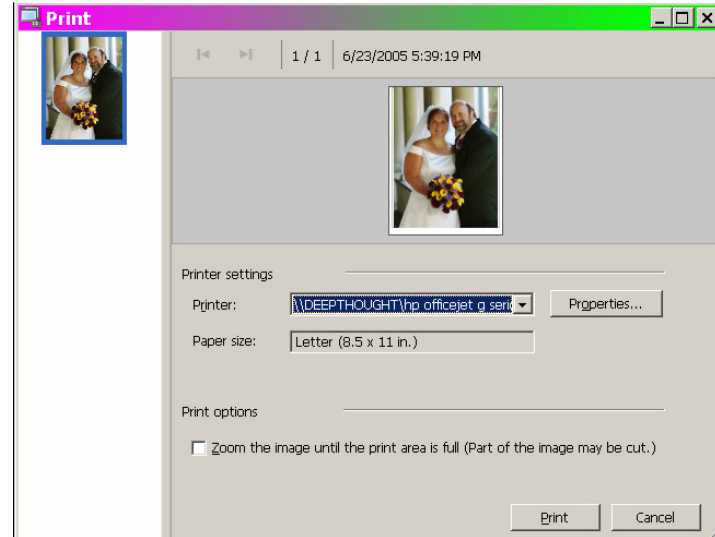


Figure 9-12: The Print Screen

✓ Hit “OK”.

From now on, once you find your images via the thumbnail browser, you can have them automatically opened in your favorite editor by right-clicking on it and then choosing “Open with External Program” → [Choose your favorite from a list of one ☺].

RAW conversion

You may recall that in Chapter 8 I discussed the merits of shooting RAW, and how RAW is essentially the bits delivered directly from the chip with no in-camera image processing. To make RAW files usable, they must be converted into an industry standard format like .jpg, .tif, or .bmp. Sony’s supplied Image Data Converter SR software not only will perform this conversion for you, *it will also allow you to specify the in-camera image-tweaking settings after-the-fact*. Just as we no longer need to decide whether to load our camera with color or black-and-white film ahead of time anymore (you can decide that later via the computer), you also don’t need to decide upon hue, saturation, contrast, white balance, in-camera sharpening, or exposure compensation (!) ahead of time. Quite a useful tool. This section will walk you through its use.

While you're looking at thumbnails in the Picture Motion Browser software, you can identify the pictures shot in RAW format by the small icons in the lower-right-hand corner of the thumbnails. And while you can double-click on the RAW thumbnail to look at a larger version of it (just like you can with the .jpg files), you'll notice that there's only ONE option available when clicking on the Edit icon: "Image Data Converter SR". Choosing this option brings up the Image Data Converter SR software as shown in **Figure 9-13**.

As you can see, all the tweaking parameters that *weren't* handled in the camera are now available for you to tweak yourself. In fact, the IDCSR software lets you tweak more parameters in RAW than the Picture Motion Browser software allows you to alter with .jpg files.

To the left of the large image is a vertical menu of parameters you can change, such as white balance, EV adjustment, noise reduction, contrast, tone curve, and picture effect. Each one of these performs the identical function as the similarly-named in-camera function covered in previous chapters. (Except the "Tone Curve" function, which was covered a few pages ago.)

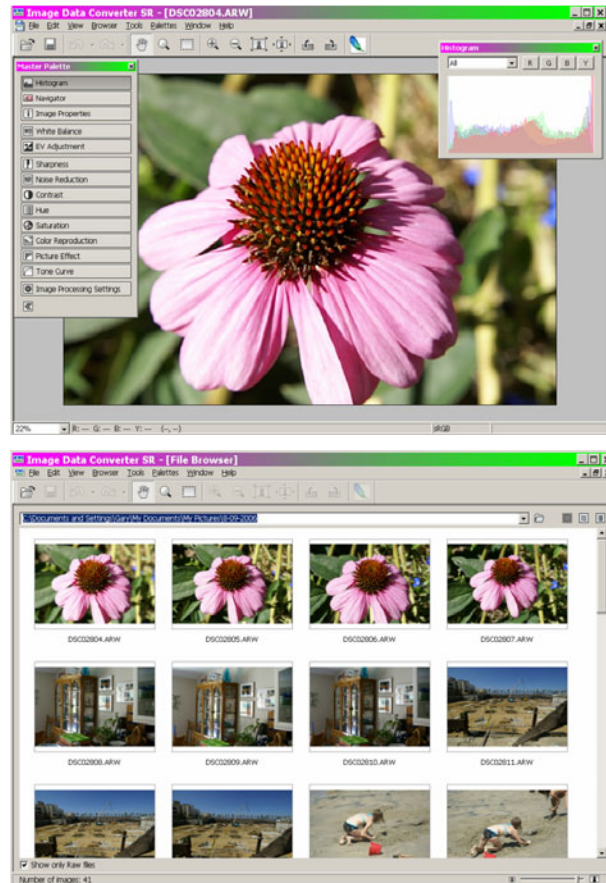


Figure 9-13: The Image Data Converter SR screens. The top screen is your first view, but hitting CTRL-TAB will take you to another thumbnails screen.

Click on any one of them and a small parameter adjustment box pops up. Once you adjust the parameter, clicking on the vertical menu variable again makes the pop-up box go away. (You don't actually have to hit "OK" after adjusting every parameter like you do with other software.)

Once you're finished tweaking, you must save the file to disk by going to the FILE menu and selecting SAVE AS... Here you can save it as a .JPG (and you can choose your compression level – keep it as "1" for best quality)), a .TIF, or .SR2. (SR2? What is THAT?? See TIP on next page.) (Refer to Chapter 8 for a discussion of .tif and .jpg compression levels and artifacts.)

Just as a quick comparison, the table below shows relative file sizes for the sample image from generated by Image Data Converter SR:

File Type	Size
Original .ARW file	9.3 MB
.SR2	20 MB
.TIFF	29.4 MB
.JPG Compression level 1 (highest quality)	6.6 MB
.JPG Compression level 4	445 KB (!)

TIP - What's an .SR2 file? You'll notice that when editing .ARW files using Image Data Converter SR, you can't save them as an .ARW file again - only .JPG, .TIF, or .SR2. SR2 is another proprietary RAW file format which Sony employed for its previous cameras. No official explanation was given as to why two raw different formats are used, but I suspect that the SR2 format is more backward compatible with Sony's earlier software packages, whereas the .ARW file format is quite quick - it is about half the size of the .SR2 format, and the A100 can quickly playback and zoom these files (something you can't usually do quickly with previous RAW formats).

Summary of Chapter 9

Well, this chapter has barely scratched the surface regarding what the Picture Motion Browser and the Image Data Converter SR software can do. But hopefully it has given you a short, sweet, non-intimidating tour of its most useful features, and will serve as a springboard for you to explore more of its capability on your own. In addition to the functions covered here, the software can also:

- Resize images using the Manipulate → Resize and Save function.
- Automatically scale-down images and attach them in an outgoing email message using Manipulate → Email Images... (Note: This won't automatically attach with web-based email such as Yahoo! or Hotmail.)
- Perform a "Batch Date Change" to change the sequence of images as they appear in the organizer.
- Apply batch RAW conversion settings for an entire directory – a timesaving feature!
- Plus more!

Chapter 10

Additional Resources

Thought this book provided a great amount of information? Wait, there's more!

In this book I have tried to provide a careful balance of information, knowledge, inspiration, and history. But your journey has only just begun. As you may have inferred from Chapter 6, there is so much to learn about photography that one e-book cannot possibly convey it all. Plus, there are many internet –based resources that you might find helpful in your continuing discovery of this wonderful hobby.

To that end I have created a hodgepodge of information, in case these might be of interest to you. (There are also other things that have little to do with teaching the photographic arts, but what the heck! I'll share these with you as well! ☺)

Internet Forums and Discussion Boards

There are many resources on the Internet to ask questions, learn from others, and even post pictures you're proud of to get feedback. (Chances are you heard about this book via one of them!)

- Digital Photography Review (www.DPReview.com) – Contains the latest news, extremely detailed camera reviews and comparisons, and discussion forums on every imaginable subject, although the most active forums have to do with specific camera brands. Check out the “Sony SLR Talk” discussion forum.
- Steve’s Digicams (www.steves-digicams.com) – Very similar to www.DPReview.com, but seems designed to attract a slightly different crowd. Try both and see which one you feel most comfortable with.
- Dyxum (www.Dyxum.com) – This is a popular site dedicated solely to Minolta (and now Sony) cameras. Its name is a mixture of two of Minolta’s brand names: “Dynax” and “Maxxum”. A very friendly and dedicated group of people hang out here!
- Photo.net (www.Photo.net) – the granddaddy of all web-based photo discussion boards. Photo.net tends to emphasize images over camera brands, and is designed, more than any other site (except maybe flickr.com; see below) to host and share images and techniques with others.
- Flickr (www.Flickr.com) – This is kind of a cross between www.Photo.net and the social networking site www.MySpace.com. Flickr (yes, there are three consecutive consonants in the name) is a site where people can upload, classify, share, and invite comments on all of their images. Other users can rate your pictures, which is Flickr’s mechanism for separating the good from the great images when displaying search results. In these respects it sounds identical to photo.net, but again, Flickr seems designed to attract a younger crowd. For \$25/year you can store an unlimited amount of photos on their servers – great for off-site disaster recovery for your precious images!

- Yahoo! Groups – Minolta and SonyAlpha (www.groups.yahoo.com) – Yahoo(!) Groups has its legacy in the old BBS and listserve computer-based group discussion mechanisms dating back to the 1960's. No matter what subject you may wish to discuss, there is probably a Yahoo Group already formed accommodating people of similar interests. Search for the word “Minolta” and you will come up with over 100 different groups; the most popular one (and the one I highly recommend) is the one simply named “Minolta” with over 6,000 members. Unlike discussion boards for almost any other camera brand, the folks who subscribe to this list are extremely helpful and friendly. There is also a relatively new group named a100group which has a smaller subscriber base right now but is just as friendly as the Minolta group and is sure to grow as word of this camera's abilities spreads.
- <http://www.photoclubalpha.com/> - This is a temporary website hosted by Icon Publications (see below) with a host of resources, present and past.

Two Outstanding Imaging Magazines

Icon Publications, Ltd. (United Kingdom) publishes two outstanding photographic magazines targeting different audiences. If you're tired of the banality of "Popular Photography", you'll find these magazines to be a breath of fresh air:

- ✓ Photoworld is a magazine dedicated to Alpha and Minolta photographers who wish to get in-depth articles regarding Alpha equipment, lenses, techniques, and reader galleries. (The fact that I am an occasional contributor has nothing to do with my strong endorsement of this fine magazine!) More information can be found at <http://www.photoclubalpha.com/> and <http://www.iconpublications.com/f2photo/photoworldsubpage.html>.
-

- ✓ Master Photo>Digital is a magazine originally intended for members of the U.K.'s Master Phototographers Association, but others can now subscribe as well. The focus of MPD is on social and commercial photography - portraits, weddings, babies, schools, graduation, events, fashion, industrial, architectural, product photography, model portfolios, corporate, PR, professional qualifications, business skills, training, regional and national events and awards. More info at <http://www.iconpublications.com/f2photo/combinedsubpage.html>.

Special deals are offered for people who subscribe to more than one magazine. Visit www.IconPublications.com for more details!

25 Ways to “Wow!” e-Booklet

Now that you've become familiar with all of your camera's bells and whistles, I invite you to expand your mind - the right side of your mind, to be specific - and unleash some of its creative forces. Creativity, above all else, is really what makes great photography.

To that end, I have assembled an e-booklet called "25 Ways to 'Wow!'", a collection of 25 ideas and additional compositional rules designed to get your creative juices flowing and to help you take the kinds of pictures that make people say "Wow!" (the goal of every photographer!). It is available for only USD \$5.95 as an instantly-downloadable .pdf file.

That's an awfully low price. And I think there has never been such a large collection of creativity-stimulating ideas available for such a small amount. It's part of my overall business strategy to make great content available to everybody.

WHAT YOU'LL LEARN IN THIS E-BOOKLET

- What every National Geographic photographer does that you swear is unethical
- The "inner game" mindsets used by all the photographic masters
- The simple things that differentiate "art" from mere snapshots
- At least a dozen additional compositional rules (over and above what appears in Chapter 6)
- Ways to salvage low light conditions and turn them into memorable shots
- Three simple steps to making every shot outstanding

And much more! You can purchase and download your own copy right now by visiting www.FriedmanArchives.com/ebooks.

FREQUENTLY ASKED QUESTIONS ABOUT THE "25 WAYS TO 'WOW!'" E-BOOKLET

Q: "Gary, I really liked your book. I own many other books on photography, all of which also claim to offer compositional rules and ideas for creativity. Am I likely to find anything new with your offering?"

A: It's hard to say, but I will tell you that I did not make most of these up. They are established rules and formulas which have been used by great photographers for over a century. What makes my offering unique is 1) it's all been assembled into one handy and easy-to-digest volume, and 2) the price for the collection sets a new record for informational value. If you are a beginner, then this is the most approachable and affordable place to start getting your creative juices flowing.



Q: "I see you're not offering any preview pages or a table of contents like you did with your books. Can I see what I'm going to be getting before I buy?"

A: Hey, I don't want to give away the store! One page can be seen on the shopping cart page (using the link above). I am hoping that my previous works have resonated with you, and I sincerely believe that for USD \$5.95 you are likely to find at least one new idea or knowledge fragment that will make the purchase worth your while. You can't lose!

Q: "Okay, you have a great track record and it sounds worthwhile. What was that link again?"

A: Go to <http://FriedmanArchives.com/ebooks> and then click on "25 Ways to Wow!"

The Friedman Archives Seminars

Want to take your photography insights and skills to the next level? *The Friedman Archives Photography Seminars* were created for all photographers who would like to learn more, reinforce what they already know, experiment, practice, and generally become inspired to become better photographers via their digital cameras. All in a fun, friendly, supportive, and nurturing environment.

Here's what you'll learn from this seminar:

- The most common mistakes to avoid when photographing people.
- Easy-to-use tips and techniques for family photos *everyone* will want a copy of!
- 5 professional secrets of outstanding travel photography.
- The greatest photographic myth ever perpetuated.
- Hands-on experience and creative expression with the wireless flash.
- More details and demonstrations on how to use photo editing software to make your images look spectacular!

There will also be ample discovery exercises to allow you to become familiar with your camera's operation and experiment with particular features.

The Friedman Archives Photography Seminars are a wonderful way to help you get the most out of your digital camera investment, and to invigorate your creative spirit all at the same time. More information (including cities and schedules) can be found at www.FriedmanArchives.com/seminars .

Please visit the site and register your interest in having a seminar in your city!

The Advanced Topics E-Booklet

I receive emails on a daily basis from readers, asking detailed questions about certain topics that were, well, just too technical for a book aimed at beginners and advanced amateurs. So I've taken the most popular questions and created an easy-to-understand (and thoroughly researched) guide which, in keeping with tradition, contains many real-world examples and explains complex subjects in a way that is very approachable.

The new e-booklet provides insights into the following popular topics:

- Methods for connecting a 3rd-Party Flash (and insights as to which ones will work seamlessly with your camera – it's not straightforward).
- The “Lazy Eye” syndrome and ways it can be minimized.
- The Basics of Proper Exposure (including some surprising multi-segment metering behavior!)
- Combining Zone Matching and Dynamic Range Optimization (DRO)
- An Incident Light Meter that's Always With You
- Recovering Poorly-Exposed Images and Expanding Apparent Dynamic Range using RAW
- High-Speed Sync (HSS) at High Speeds (i.e., why do HSS shots look so dark?)
- The Noise about Noise (plus an unintuitive way to reduce it)
- Operating your camera in extremely cold weather.

This instantly-downloadable .pdf file contains some insights and topics that cannot be found anywhere else, and spans over 70 pages. And like my other e-books, this e-booklet is priced at an astoundingly low \$9.95. How can you lose?? Download your copy now at www.FriedmanArchives.com/ebooks and click on the “Advanced Topics” icon.

Frequently Asked Questions about the Advanced Topics e-booklet

Q: I'm only interested in 3 of your topics. Can I just pay you 1/3rd your asking price and you can send me the parts I want?

A: Ummm... no.

Q: Can I see any sample pages like I could with the original book?

A: Sure, why not? www.FriedmanArchives.com/ebooks/advanced_topics

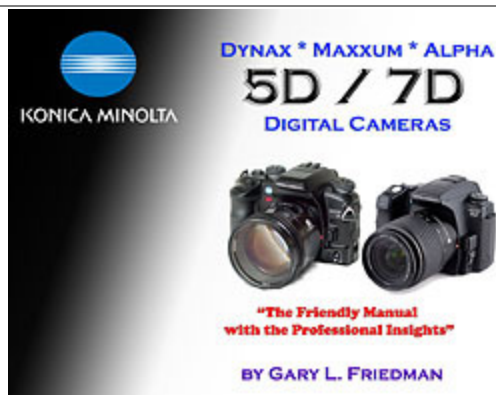
Q: Gary, your other books were so clear and straightforward. I'm still getting my arms around the basics. Will this Advanced Topics guide be too difficult for me to understand?

A: It's impossible to say... probably the best answer I can give you is "If any of these topics grab your interest, it's probably a good bet that the e-booklet will be worth your investment."



Books on Previous Cameras

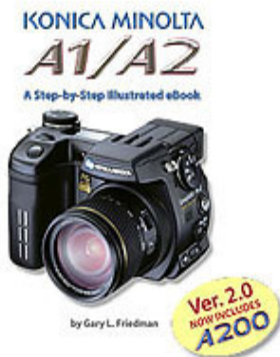
You probably don't own one of these cameras, but perhaps you know someone who does! ☺



Konica Minolta Dynax Maxxum Alpha 7D and 5D (available as an immediate .pdf download or as a printed manual).

(These cameras are the predecessor to the Sony Alpha system.)

www.FriedmanArchives.com/ebooks



Konica Minolta A1 / A2 / A200 Digital Cameras

www.FriedmanArchives.com/ebooks

The Road to China

In August, 2003 I made arrangements to teach English in China, but when I got there, there was no job. So begins a very interesting six-month stay in Beijing, and I kept a travelogue of my adventures here. Within these pages you'll hear stories of college life, the move to a market economy, corruption, burnout, mobsters, government as benevolent parent, the surprising gravitation to all things Western, and the tribulations of a foreigner trying to start a new business. (Oh, yes, and the experiences of a newbie teaching English in a foreign land!) You are also introduced to some of my students, who in their own words talk about their lives, aspirations, and frustrations.

This highly-acclaimed work is finally available in a hand-holdable, solar-powered edition published by Lulu.com. Available in both Color and B&W. You can learn more by visiting www.FriedmanArchives.com/ebooks.

Here's what others have been saying about The Road to China:

"Wow! I really love the way you write. A real page-scroller. Your story is remarkable and memorable. It will have a place of its own in the hearts and minds of those it touches." - DR Rawson

"You're truly one of the most amazing people I know; I'm not sure I would have gotten on the plane after the e-mails you received. I look forward to more, more, more!" - Dr. Brian Grossman



"The thing that strikes me is that you are an American in China, and seem to be having the time of your life. How you can appreciate your apartment that much is amazing. But I guess that's Gary Friedman. Always able to see the value where others cannot. I think 99 percent of Americans would feel absolutely displaced, and panicked to be in your position right now. You intentionally dove head first into the situation and it is a complete success. This is stuff books are often made of. This is an American/Chinese version of 'Dances with Wolves'." - Mike Cole

"The last photo is a scream. AHHHHHHHH!" - Sheila Clapkin



The Maui Xaphoon

In Chapter 1 I talked about how there's no better way to make friends in a strange land than with digital photography. While I still believe this is true, I have also found another way – not better, but certainly equal in many respects. It is a musical instrument called a Xaphoon (www.Xaphoon.com). It looks like a recorder (about 12 inches in length) but sounds like a cross between a saxophone and clarinet -- much deeper and richer than its size would suggest.

It's great because it doesn't weigh me down, it's always with me, and no matter where I go in the world, I can sit down on a street corner (usually next to a good acoustic space) and just play. What happens next is almost always magical, for you can elicit smiles and eye contact from complete strangers as they walk by.

This has nothing to do with teaching photography, by the way, other than to reinforce the philosophy that the whole purpose of travel is to interact with the locals and perhaps spread a little joy throughout the world. I think that's what I love most about photography – it gives me an excuse to go places, do things, and meet people that I wouldn't ordinarily get a chance to meet. The Xaphoon fits in with that philosophy nicely, and for that reason there is always one in my camera bag. If you're an independent thinker and musically inclined, (or if you know someone that is), this is a must-have instrument!



(Full disclosure: I love the instrument so much that I became a Xaphoon distributor, and I created and run the Xaphoon.com website. I figured that while I'm on this shameless self-promotion spree, why not share my enthusiasm for this amazing instrument as well? ☺)

You can read more about the Xaphoon at www.Xaphoon.com.

Appendix A

A Brief History of Minolta Innovation

Many great ideas were born here and copied by others!

Introduction

Before Sony introduced its first DSLR, the Alpha 100, it was Minolta (briefly known as “Konica Minolta” before the takeover) who created the world’s first commercially successful Autofocus SLR on which the alpha system is based. Their products were outstanding; however due to modesty nobody outside the ownership circles knew just how great. Minolta has contributed many firsts and new ideas to the photographic world; this appendix lists some of the more noteworthy ones.

Minolta actually opened shop in 1928 using the name “Nichi-Doku Shashinki Shoten” (which means Japan-German camera-vendor) by its founder, Kazuo Tashima. Thankfully, the name was later shortened to Minolta (Mechanism, INstruments, Optics and Lenses by TAshima) in 1931.



1929. The **Nifcalette** was Minolta's first camera, brought onto the market in Japan in the year of the company's inception (1928). The Nifcalette was a folding roll-film camera with the format 40x65 mm. It had a lens and a diaphragm shutter manufactured in Germany.



The Autocord, a twin-lens reflex camera that took roll film (larger format than 35mm). This camera was produced from **1955 to 1972** with very few changes.



1958. Owing to the success of other manufacturer's Single Lens Reflex (SLR) cameras, Minolta introduced its SR-2 camera with a whopping selection of 3 interchangeable lenses. It had no meter, needed no batteries, and the viewfinder would stay dark until the film was wound. This lens mount would endure, unmodified, for 27 years until the introduction of the A-mount (autofocus) camera bodies. The old manual-focus lens mount design is still flourishing; it's being used by the Seagull camera company of China under license from Minolta.



Only a prototype from **1966**, the Auto-Zoom-X featured a 30-120mm zoom lens with aperture-priority exposure and autowinding, and used 16mm film. (This was the start of Minolta's frequent use of the name "X" within their model numbers.) The batteries and shutter release were located in the grip. Ideas from this design were incorporated into Minolta's Dimage Z-series digital cameras.



Minolta SRT-101. A classic by anybody's standard. The most successful SLR-model of its time. Fully manual with built-in CLC light metering. Can use it in Siberia in the wintertime. Mine still works after years of hard use!



1962. John Glenn blasts into space on board the Friendship 7, America's first manned spacecraft to orbit the earth with the 'Right Stuff' -- a specially modified **Minolta Hi-Matic** camera. Note how the camera is used upside down with a folding viewfinder mounted to the base of the camera.



1972 –Leica collaborates with Minolta in the introduction of a more modern, smaller and affordable rangefinder camera. The Leica CL, Minolta CL, Leitz-Minolta CL and later the Minolta CLE are a result of this collaboration.



1972 Minolta XK decided to take on the immensely successful Nikon F2 professional camera by offering their version with the same features, but going one better: In addition to rugged construction and interchangeable finders and focusing screens, Minolta added aperture-priority automatic exposure to the design, making it the most advanced professional-caliber camera body in the world at the time.

Pictured here is the XK motor, an even higher-end camera which could meter between exposures at 3 frames per second – a feat no other camera in its

day could achieve.



1976 Leica and Minolta begin sharing design and production of several camera bodies and lenses, starting with the XE-7 which is nearly identical to Leica's R3. (See the similarities?)



Minolta also produced the R3, R4 & R5 models for Leica.



1978 – XD11. The world's first camera with both aperture-priority, shutter-priority, and program mode exposure (although the Program mode wasn't highlighted in the marketing literature until after Canon's success of the AE-1 Program camera was introduced.) This camera was also the basis of the Leica R4 and all of its successors, and is considered by many to be Minolta's best quality (and smallest!) manual-focus SLR.



1981. The **Minolta CLE** was based on Leica's popular rangefinder format (accepting most of Leica's legendary M-series lenses), but brought it into the modern world by adorning it with automatic aperture-priority exposure and automatic flash exposure. It took Leica almost 20 years to offer something as advanced.



1985 – Disruptive technology hits with the introduction of the Maxxum line of autofocus SLR cameras. It took Nikon and Canon years of scrambling to catch up. (Pictured: the professional-level Maxxum 9000, the best camera in the world when it was introduced.)

(See next page for image)

1985 - DR-1000 Remote Light Meter Release – Here's a very useful idea that was way ahead of its time. Let's say you're a professional photographer about to take a group picture. Your camera is mounted on a tripod with a long telephoto lens. You take your Minolta-brand handheld light meter (hey, I *told* you that you were a professional!) to measure the light hitting the subject (a more accurate way to meter when everyone's wearing black suits). If this had been an ordinary camera, after taking the reading you



would have to walk all the way back to the camera and manually dial in the f/stop and shutter speed that your handheld meter recommended, and then you'd press the shutter release to take the picture.

But wait! What if you could do all that without having to walk all the way back to your camera? Using Minolta's Flashmeter IV and the rare DR-1000 data receiver, you could push a button and the exposure settings would be electronically transmitted to the camera by an Infrared data link. Pushing another button on the light meter would then tell the camera to take the picture by remote control. Brilliantly useful.



1992 – The entire xi-series product line was an ambitious user interface experiment which sought to turn the camera into a Macintosh. That is, just as the Macintosh allowed people who knew nothing about computers to do useful things, Minolta created a series of cameras to allow people who knew nothing about photography to take good pictures. This was an interesting chapter in Minolta's history, as even the cameras' target demographic didn't see much value in the new features – “intelligent” auto-zoom, little cards you could insert to tell the camera what kind of a picture you wanted, and lenses with zoom motors

inside. All of the innovations from that period have faded away, sans two: the new, improved flash hot shoe, and (thankfully) the wireless flash system, which is so good it has earned its own chapter this book.

Two xi features that I miss were the UV-cured polymer body coating (the most scratch-resistant camera I have ever owned!), and the construction of the 9xi, which could literally bounce off of concrete and not show any damage (and keep working!)



1995 - RD-175. The Minolta RD-175 was a pioneering 1.75 megapixel DSLR camera based upon Minolta's Maxxum lens mount. Built around their 400si film camera body, it used 3 video chips with a 3-way beam splitter and "stitched" all the images together in software to achieve a reasonably high (for its day) resolution at a competitive price.



1999 – RD-3000 The same innovative 3-sensor approach used in the RD-175 was also used in the 3 megapixel RD-3000 digital camera, one of the best digital cameras you could buy at the time. To minimize the crop factor (due to the small size of the sensors), this DSLR used Minolta's APS-series "Vectis" interchangeable lenses, NOT the more popular Maxxum lens mount.



A much-improved “hot shoe”. You don’t appreciate this unless you shoot under pressure. The traditional flash mount on every other camera is based on a design that dates back to at least 1940. It has become problematic because as time went on, more and more electrical contacts have been added to the standard shoe mount to allow flash automation. The first problem with this design is it takes between 5 to 10 seconds to mount or remove the flash and then secure it by screwing down a retaining nut. The second problem is that if you did not secure it properly (and sometimes even if you do), as you run around the flash might slip a little in the shoe mount, resulting in either no flash or horribly overexposed flash pictures. This has happened to more than one wedding photographer that I know of back in the days of film, when you didn’t become aware of this kind of failure until after the pictures were developed.

Few recognize this as being a problem. Minolta engineers not only recognized it, but also addressed the problem by completely redesigning the hot shoe. Now it can easily and surely slide on and off in less than one second, and I have never, ever had the flash fail because of a poor fitting!



1999 – An obscure brush with genius. This was a specially modified Dimage EX Zoom 1500 camera with a MetaCreations add-on which enables it to take a picture of an object and have it show up in the computer as a fully-rendered 3D model, ready for a design modification or a virtual reality realization. They also made a larger, industrial-strength version that did the same thing but faster.



2000 - Maxxum 7 – Ask anyone who's used one, and they'll tell you this has the best user interface of any autofocus SLR. You really have to use this camera day in and day out under high-pressure shooting conditions to appreciate all the subtle design nuances that this camera offers. The most innovative feature was the display on the back, showing you all of the camera's settings at a glance, and allowing you to see in plain English what every custom function does and what it's set to. The display also provided a brightness range map to those who wanted to see beforehand which parts of the scene would fall where in the range of tonal values. (Don't worry if this sounds too technical; the folks who needed this



information appreciated it greatly!) These subtle-yet-useful improvements may be obvious in retrospect, but Minolta engineers were the first to think of them.



2002 - Hassleblad H1. What has Minolta got to do with a medium format classic? They had lent their expertise in autofocus and extremely bright focusing screens to Hassleblad (who lacked such expertise in-house) in the creation of their new H1 645-format roll-film camera.



2003 & 2004 – Dimage A1 and A2 digital cameras. Minolta was the first to offer a digital camera with a real 28 mm wide angle lens (and was the only one to do so for several years after that), they were also the first to offer its unique Anti-Shake technology. The lens and overall image quality of the cameras have won accolades worldwide, and I was so impressed with them that I wrote a book (similar to this one) describing their use!



2004 & 2005 – The 5D and 7D DSLRs – This represents KM's 3rd-generation of DSLR (following the RD-174 and the RD-3000), and its user interface borrows heavily from the Maxxum 7 described above. They had the best viewfinder and user interface design in the industry, and catered mostly to independent thinkers. ☺

Appendix B

A “Cookbook” for Special Shooting Situations

Camera settings you can use for different types of shots.

This Appendix will provide a “Cookbook” approach to taking pictures in special situations where your camera’s automatic exposure meter is sure to be fooled:

- Fireworks
- Artistic Waterfalls
- Stage Performances / Rock Concerts
- Nighttime Time Exposures
- Shooting in Snow
- Outdoor Group Portraits
- Street Photography
- I-Don’t-Want-To-Tweak-My-Images-In-My-Computer Mode
- Sunsets
- The Moon
- Nighttime Sports
- Christmas Lights
- Candlelight Shots

Introduction

As mentioned in Chapter 4, your camera's light meter is optimized to provide accurate exposures for most average scenes. (Chapters 4 and 5 also discussed the tools available to you -- exposure compensation, manual exposure mode, histogram display -- to help you get the right exposure when your image is NOT average.)

Well, it turns out that there's a large body of image genres which fall outside the definition of "average", and therefore using an automatic exposure meter optimized for average scenes will almost surely not provide the results intended. And so, this Appendix is being provided. It is a guide of recommended camera settings for taking the most common non-average photographs in situations where your automatic exposure meter will likely make poor recommendations.

As with all such advice, none of these settings should be considered "absolute truth" or "carved in stone"; rather they are suggested starting points at which you can start experimenting for certain kinds of effects in unusual lighting situations.

Okay, let's begin!



Fireworks

- ✓ Set the camera on a tripod.
- ✓ Turn Super SteadyShot OFF.
- ✓ Set focusing to Manual and set the lens to focus at infinity.
- ✓ Set the ISO to 100.
- ✓ Set white balance to Daylight.
- ✓ Set the aperture to 5.6 (just to start out).
- ✓ Set the shutter speed to 15 seconds.
You can set it for longer to capture additional fireworks bursts, but setting it for too long will cause the sky to turn grey and everything else will be overexposed).
- ✓ Check your initial pictures. If they appear overexposed, set the aperture to a higher number (like f/8 or f/11). If they appear underexposed, set it to a lower number (like f/3.5).
- ✓ Sometimes it is helpful to include something on the ground in the composition to get a sense of place.



Artistic Waterfalls

We've all seen them – Waterfalls which have a kind of fluid quality to them. How is this done? Well, we all know that using a fast shutter speed will freeze things, and we also know that using a slow shutter speed will make *everything that is moving appear blurry*. In the picture only the water is moving (while the rocks and vegetation stay still), and using as slow a shutter speed as possible will give it the effect of smooth movement.

- ✓ Use a tripod. Turn AS off only if your tripod is rock-solid.
- ✓ Set ISO to 100 (a low sensitivity extends exposure)
- ✓ Set Exposure mode to "A" and choose the smallest f/stop (the highest number) that your lens will support.
- ✓ If you have a circular polarizer or a neutral density (grey) filter, put that in front of the lens. This will slow down the shutter speed even further.



Stage Performances / Rock Concerts

- ✓ Use “P” mode and a telephoto lens (like 200 mm).
- ✓ White balance set to Tungsten.
- ✓ Focus-lock and then put the camera into Manual Focus mode.
- ✓ Make sure the AEL button is configured to AE TOGGLE.
- ✓ Turn Spot Metering Mode ON.
- ✓ When a white spotlight is on the performer, aim the camera so the illuminated performer falls within the center circle of the viewfinder, and press the AEL button. This locks the exposure.
- ✓ You can shoot the entire concert with this locked exposure setting. (Even when the lighting changes!)



Nighttime time exposures (as mentioned in the book)

- ✓ Put the camera on a tripod
- ✓ Turn Supere SteadyShot OFF
- ✓ ISO to 100
- ✓ Manual exposure mode, set the shutter speed to BULB.
- ✓ Focus-lock on your subject and switch to manual focus mode.
- ✓ If you're shooting streets lit with mercury vapor lamps, set the white balance to "Fluorescent". If your scene is lit with normal light bulbs, set the white balance to "Tungsten". If you're not sure, use Auto White Balance.
- ✓ Set the f/stop to something medium, like f/5.6.
- ✓ Attach a remote release cord if you have one.
- ✓ Start with a 30-second exposure, look at the results, and tweak your exposure from there.



www.FriedmanArchives.com

Shooting in Snow

Snow can be tricky because the white background can throw off the metering. There are two different methods you can use that work well:

1. Set Exposure Compensation about +1 or +1.5 stops.
2. Use the camera's built-in flash to illuminate your subject (if you are close enough, that is.) No exposure compensation is necessary with this method.



Outdoor Group Portraits

While it may be counter-intuitive, outdoor group portraits should actually be done in open shade (NOT direct sunlight) using an accessory flash to “fill in” the faces. The following assumes that YOU want to be in the shot as well:

- ✓ Put the camera on a tripod.
- ✓ Set the camera to 10-second Self-Timer
- ✓ Set the FLASH exposure compensation to -1.0.
- ✓ Shoot away!

The results will look quite professional, and not as if it was shot with a flash.



Street Photography

Street photography is often done as a candid shot, sometimes “shot from the hip” as you are walking by. Classic street photography from the old days was often done with rangefinder cameras which had no automatic focus or exposure. Here is how to shoot in this classic style:

- ✓ Use the widest-angle lens you can.
- ✓ Use Manual Focus mode and manually set the focus to infinity. (This will get most things into focus.)
- ✓ Use Manual Exposure mode, and meter for the sidewalk (which is usually pretty close to a neutral grey.)
- ✓ If it is not a bright day, set your ISO to 400. (Otherwise you can set it to AUTO.)
- ✓ Shoot away!

Notice that if you’re shooting on a well-lit street at night, the same procedure (metering off the sidewalk) will work equally well, although you may have to boost the ISO to 800 or greater.)



I-Don't-Want-To-Tweak-My-Images-In-My-Computer Mode

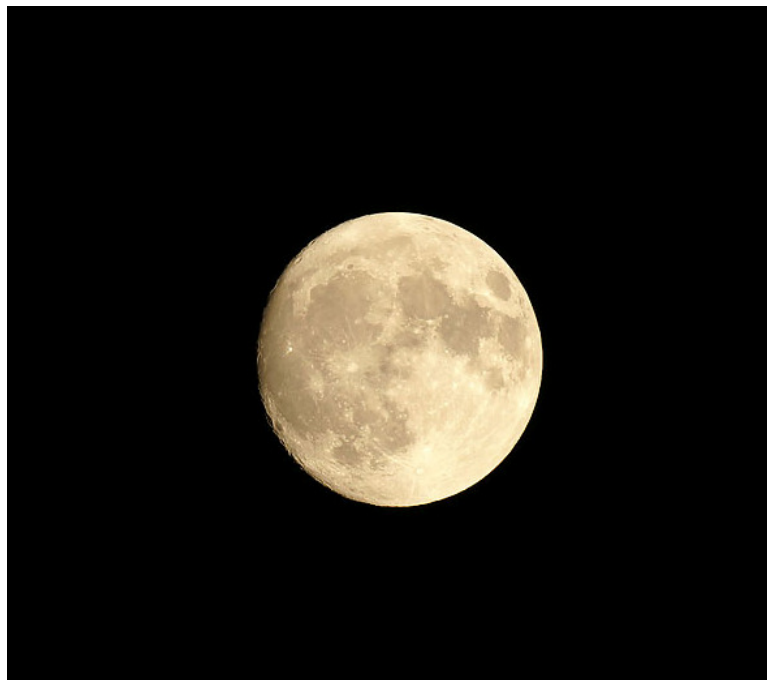
The A100 does a better job of producing ready-to-print images right out of the camera than any previous alpha-mount DSLR. However, if you're still not completely satisfied with the output, you might want to adjust the following in-camera DEC settings:

- ✓ Contrast: +1
- ✓ Color Mode: Vivid
- ✓ Sharpness: +1



Sunsets and Silhouettes

- ✓ Using Spot Metering mode, aim the center circle of the viewfinder to a bright area of the sky that DOESN'T contain the sun.
- ✓ Use AE-LOCK to lock the exposure.
- ✓ Be sure to remember to use the rule of thirds when it comes to placing the subject (sun, horizon, or silhouette)!
- ✓ You can also perform the above using Sunset mode on the A100 for warmer hues in the sky.



The Moon

Here you can only expect success if you have a long telephoto lens and a rock-solid tripod. I used a 500mm lens for this shot.

- ✓ Use a steady tripod and turn Super SteadyShot OFF.
- ✓ Use P exposure mode.
- ✓ Use the Spot-meter and meter on the moon's surface. Use Exposure Compensation to add $\frac{1}{2}$ to 1 stop additional exposure.
- ✓ Use the 2-second self-timer function (which flips up the mirror early and reduces vibration).



Nighttime Sports

For shooting sports like football or basketball games that are illuminated by bright stadium lights, don't use auto exposure mode since the black sky or the bright stadium lights can often throw the exposure off. Instead, do the following:

- ✓ Use Aperture Priority mode, and open up the lens all the way. (This ensures the fastest shutter speed.)
- ✓ Use ISO 400 (or even higher if it's really dark, although higher settings will result in noisier pictures).
- ✓ Set White Balance to Tungsten or Fluorescent (depending on whether the stadium lights are tungsten or Mercury Vapor lamps).
- ✓ If all the action will be roughly the same distance away, focus-lock on where the action will be and put the camera into Manual Focus mode.
- ✓ Use spot metering and AE TOGGLE to lock in the exposure of a patch of illuminated dirt or grass. Ideally this should give you a shutter speed of $1/125^{\text{th}}$ of a second (or

	thereabouts; in the example shown it was more like $1/30^{\text{th}}$ of a second). You can use this exposure reading for the duration of the game.
--	---

- | | |
|--|--|
| | <ul style="list-style-type: none">✓ Anticipate the action and Shoot! Shoot! Shoot! |
|--|--|



Christmas Lights

(or any other type of nighttime lights)

You don't use a flash when taking pictures of Christmas lights, since the lights themselves create their own light. Instead, use this simple procedure:

- ✓ Set White Balance to Tungsten.
- ✓ Set the ISO to 200 or 400.
- ✓ Use Spot Metering and aim the camera so the spot metering circle in the viewfinder is filled with lights; then use AE Lock to lock the exposure.
- ✓ Recompose your image and shoot away!

If the lights are bright enough, you can probably shoot handheld (with Super SteadyShot ON, of course!). Otherwise, use a tripod and turn Super SteadyShot OFF.



Product Shots

Here's another instance where setting your camera to Automatic will probably not yield the professional-looking results you seek. The image to the left was designed for selling these items on e-bay. (I have learned that the higher quality your shot, the higher the bids you get on your old equipment! ☺)

- ✓ Wireless Flash and an umbrella reflector
- ✓ The camera used a Macro (close-focusing) lens and was mounted on a tripod. f/11 was used to keep most items in focus.
- ✓ The 5600 flash was set to MANUAL output – in this case $\frac{1}{4}$ – because the dark background and bright reflective surface of the camera would surely throw off the automatic exposure. I tried different values until this rich, classic underexposed feel was achieved.

Compose with some color in the background to catch the eye.



Interiors that sell

This technique is straightforward, but requires multiple off-camera wireless flashes and white ceilings. The procedure is straightforward:

- ✓ Put the camera on a tripod, and set it and the flashes into Wireless mode.
- ✓ Place multiple flashes throughout the room, pointing to the ceiling. (Use the little duck feet that came with the flash to help set them upright, and for best results have the sensor pointing toward the camera.)
- ✓ Use Manual Exposure mode: set the shutter speed to 1/60th of a second and set the f/stop to whatever will make the scene outside the window expose correctly. (See top picture.)
- ✓ Fire away! (See bottom picture.)

You might have to experiment with several different flash placements before you get results that you're happy with.



Lightning

Lightning shots are a combination of luck and skill: Skill for getting the backdrop to show up properly; luck because you never know when a giant bolt is going to strike. For this shot I wanted to keep the shutter open for as long as possible to maximize the chances of capturing a lightning strike. So, I set the following parameters:

- ✓ ISO 100
- ✓ f/16
- ✓ Shutter speed was set so that this scene would be a little dark; in this case 2.5 seconds but it will vary for you depending on the ambient light of the scene.
- ✓ Manual focus set to infinity.
- ✓ I used Continuous Shooting mode.
- ✓ I plugged in a cable release (RC-1000L) and set it to “Lock”, this means the camera would continue to shoot as fast as it could until the card was full.

You might have to take hundreds of shots like



this until you get one good lucky shot. But, unlike the days of film, the unwanted frames don't cost you anything!



Candlelight Shots

I often use an underexposed fill-in flash to give some additional life to my candlelight shots; but this is completely optional. Camera should be on a tripod and your subject should hold perfectly still.

- ✓ Set Exposure mode to Manual; 1.5 seconds at f/3.5 (or as wide open as your lens can get).
- ✓ ISO to 400
- ✓ Flash compensation to -2 (optional; for fun try it both ways)
- ✓ Flash up
- ✓ Fire away! (No pun intended.)

Index

- 1-hour photo, 90, 92
- 2-second self-timer mode, 71
- 35mm equivalent, 41
- 3600HS-D flash, 177
- 3rd party lens manufacturers, 40
- 40-segment honeycomb “matrix” metering, 60
- 500mm lens, 26
- 5600HS-D flash, 177
- AC adapter, 69
- accessory flash, 177
- accidental deletion
 - avoiding, 84
- ADI (Advanced Distance Integration), 182
- Adobe Photoshop, 308
- AE Lock, 157, *See* AEL button
- AE Toggle, 157, 220
- AEL button, 128, 157, 220, 253
- AF Area Setup, 221
- AF Illuminator, 220
- AF Priority, 68, 219
- anticipating the action, 106
- Anti-Dust, 26
- aperture*, 108
- Aperture Priority Mode, 111, 121
- APOchromatic Lens, 42
- architecture photography, 40
- Astrophotography, 137, 138
- Audio Signals, 222
- Auto Autofocusing mode, 153
- Auto Exposure Lock, 157
- Auto Flash, 173
- Auto ISO feature, 127
- Auto Rotate, 221
- Auto White Balance, 166
- autofocus logic, 67
- Autofocus Priority, 68
- automatic exposure, 117
- B&W color mode, 207
- Basic Editing, 317
- Batteries, 53, 69, 132
- Battery charger, 69
- blue skies
 - capturing, 148
- blurry pictures, 103
- Bounce Flash, 261
- Bracket Order, 219
- Bracketing, 185
- Brightness range, 188
- Bulb – long shutter speed, 103, 132
- burning CDs or DVDs, 95
- cable release, 71, 134
- Candelight Shots, 390

- CCD
 - dust removal, 303
- CD-R longevity, 95
- CD-ROM, 92, 296
- China, 58
- Christmas Lights, 385
- Christopher Columbus, 19
- Classical Portrait, 242
- CLEAN CCD mode, 303
- Cloudy white balance, 167
- Color / DEC, 203
 - combining settings, 214
- color balance, 308
- color intensity, 203
- Color Modes (Color / DEC), 203
- Color Space, 204
- Color temperature setting, 171
- compact flash, 94, 295
 - corruption, 299
 - corruption recovery tools, 300
- composition, 228, 235
- compression artifacts, 288
- Continuous Advance Mode, 185
- Continuous AF, 67
- continuous focusing, 152
- contrast
 - focusing, 67
- contrast setting, 203, 210
- control layout**, 48
- Controls, 48
- Copperhill Method, 303
- Crop Factor, 39
- Ctrl Dial Set, 220
- current consumption, 56
- Curves, 319
- Custom Menu, 219
- Custom Menu 2**, 221
- Custom White Balance, 170
- D Lenses, 43
- darkroom, 308
- data longevity, 95
- Daylight white balance, 167
- DEC, 203
 - delete confirmation, 82, 223
 - delete marked frames, 82
 - deleting images, 80, 81
- depth of field, 109
- Depth of Field Preview, 115
- Designed for Digital (DT) lenses, 41
- Digital Effects, 203
- Direct Manual Focus, 155
- disk drive, external, 95
- display brightness range, 84
- Display Button, 85
- DMF, 155
- downloading images to your computer, 94
- DPOF
 - canceling, 93

- defined, 92
- file, 93
- drag-and-drop, 95
- Drive modes, 184
- DRO. *See* Dynamic Range Optimization
- DT (Designed for Digital), 42
- dust removal, 303
- DVD-ROM, 296
 - longevity, 95
- Dynamic Range Optimization, 27
- enlargements, 124
- Environmental Portrait, 242
- EXIF information, 315
- exposure compensation, 128, 220
 - flash, 176
- Exposure Lock, 156
- eye-start, 56, 219
- f/stop, 101, 108
- File # Memory, 222
- file browser, 82
- File Format Executive Summary, 278
- file size, 284
- file types, 282
- Fill Flash, 173, 191
- Film Counter, 61
- Fireworks, 373
- flash, 70
 - control, 219
 - default setting, 219
 - exposure compensation, 176
 - white balance, 168
- fluorescent lighting, 165, 166
 - white balance, 168
- focal length, 101
 - magnification, 39
- focus hold button, 220
- focus points, 67
- Focusing
 - Basics, 63
 - modes, 152
 - Sensors, 67
- Focus-lock, 131
- folder name, 222
- function navigation, 65
- G Lenses, 42
- ghost effect, 145
- Group Portraits, 378
- heat build-up. *See* Astrophotography
- High Speed Sync (HSS) flash, 27
- High Speed Synch (HSS) flash, 269
- histogram, 79, 192
 - display, 188
- history, 33
- Hitachi, 295
- home computer, 308
- Hot Pixels, 304
- hot shoe, 177
- HSS. *See* High-Speed Sync

- human eye, 188
- HVL-36AM accessory flash, 177
- HVL-56AM accessory flash, 177
- IBM, 295
- image
 - circle, 42
 - composition, 235
 - information display, 85
 - quality, 218
 - rescue software, 300
 - resolution, 292
 - size, 218
 - tweaking, 308
- Image Data Converter SR software, 308
- Image Remaining Counter, 61
- in-camera
 - cropping, 39
 - zooming, 39
- incandescent lighting, 165, 166
- index
 - format, 219
 - mode, 85
 - print, 93
- Instant Playback, 62
- Instant. Playback, 218
- INSTRUCTION MANUAL, 303
- internal reflections, 41, 42
- Internet Discussion Boards, 341
- interpolation algorithm, 281
- ISO, 101, 124
 - Auto, 127
 - noise, 101
- Japanese Flag, 284
- Joint Photographic Experts Group, 283
- JPG, 278, 289
 - compression artifacts, 288
 - file format, 283
- K (color temperature) setting, 171
- Konica Minolta USA, 274
- Landscape Mode, 144
 - color mode, 207
- Language, 222
- LCD
 - backlight, 222
 - brightness, 222
- LED, viewfinder, 56
- Leica, 33
- lenses, 36
 - nomenclature, 42
 - opening, 108
- light modifiers, 262
- lightning, 388
- locking an image, 84
- locking the shutter release, 134
- long lenses, 163
- Macro Lens, 43
- Macro mode, 143
- Magnifying the image, 80

- manual
 - exposure mode, 117
 - exposure mode, 121
 - flash mode, 265
 - focus, 152, 154
- marked frames, 84
- mass storage, 95
- megapixel, 279
- memory card, 283, 295
- memory saving tip, 63
- Memory Stick, 296
- MenuSec. Memory, 223
- Microdrive, 295
- Microsoft Windows XP, 95
- Minolta A1, 58
- Minolta RC-1000L, 134
- mirror lens, 43
- Monitor Display, 221
- Moon pictures, 382
- Morse code
 - flash communication, 254
- multiple directories, 82
- multiple images
 - viewing, 85
- My Personal Camera Settings, 218
- negative film, 204
 - brightness range comparison, 189
- Night View
 - color mode, 207
 - portrait mode, 145
- Night View / Portrait mode**, 148
- nighttime
 - flash exposure mode, 29
 - lights, 385
 - sports, 383
 - time exposures, 376
- Noise Reduction, 218
- noise reduction mode, 137
- number of images on a display, 82
- off-camera flash, 247
- P mode, 61
- PDOF-compliant printers, 92
- pentaprism, 29
- personal computer, 309
- Phil Bradon, 274
- photo quality, 291
- Photo Rescue, 300
- Photoshop, 281, 308, 332
- Picture Only, 85
- pinhole cameras, 108
- pixel, 279
- Play display, 221
- playback
 - button, 79
 - menu**, 219
 - mode, 85
- point-and-shoot mode, 63
- polycarbonate, 29

- portable wireless studio, 267
- Portrait mode, 131, 141, 148
 - color mode, 207
- Portraits
 - classical, 242
 - environmental, 242
- post-processing of images, 308
- Power Save modes, 53, 222
- power usage, 56
- pre-flash TTL, 182
- Pre-set White Balance, 166
- print resolution, 294
- printing images, 90
 - from Picture Motion Browser, 335
- Priority Setup, 219
- prism, 42
- product shots, 386
- Program mode, 61, 121, 131
- Program Shift, 130
- quality of light, 228
- Ratio Flash, 260
- RAW, 289
 - conversion, 336
 - file format, 278
 - RAW + JPEG, 288
- RC-1000L, 71, 134
- Rear Sync Flash, 179
- Record Display, 221
- Recording Menu**, 219
- Red-Eye Reduction Mode, 177, 219
- Reflex (mirror) lenses, 43
- Release Priority, 68, 219
- remote release, 71, *See* Cable Release
- reset, 58, 73
- resolution, 292
- restyled (RS) lens, 44
- RM-S1AM Remote cord, 71
- Rock Concerts, 375
- rotating an image, 79
- Rotating and Cropping, 317
- Rule of Thirds, 235
- saturation, 203, 211
- Scene Selection Modes, 139
- scenic mode, 29
- self-referential problem, 332
- Self-timer, 71
- sensitivity, 189
- sensor
 - dust removal, 300, 303
- Setup Menu**, 221, 222
- Setup Menu 3, 222
- Shade white balance, 167
- sharpness
 - in-camera setting, 212
 - Picture Motion Browser setting, 331
- shutter lag, 27
- Shutter Lock (no lens), 221
- Shutter Lock (no memory card), 221

- Shutter Priority mode, 102, 106, 121, 154
- shutter release button, 134
- shutter speed, 25, 100, 102
- Silhouettes, 381
- single and continuous focusing, 152
- Single-Frame Mode, 184
- Single-Shot AF, 67
- skateboarding, 154
- slide show, 88
 - pause and resume, 89
- Slow Synch, 145
- Snow, 377
- solid state, 295
- Sony RM-S1AM, 134
- Sports Program mode, 29, 106, 121, 131, 141, 154
- spot meter, 189
- spot metering, 128
- Spot Metering, 158
- SSM Lenses, 43
- Stage Performances, 375
- street photography, 154, 379
- studio lights, 191
- Summary of Scene Selection Modes, 148
- Sunset mode, 139, 148
 - color mode, 207
- Sunsets, 381
- Super SteadyShot, 23, 162
 - as applied to time exposures (don't use it!), 134
- Television screen viewing, 88
- text overlay, 85
- texture, 241
- Thumbnail view, 93, 312
- TIFF file format, 283, 289
- Time exposures, 118
- Time Exposures, 132
 - longest duration, 132
- tonal range, 28
- Tone-Curve and Histogram Adjustment tool, 319
- Tradeoffs
 - between f/stop and shutter speed, 122
- Transfer Mode, 222
- transferring images to your computer, 95
- Trash Can button, 81
- tricky lighting, 118
- tripod, 132, 162
- TTL flash
 - definition, 182
- Tungsten white balance, 168
- TV viewing, 88
- Upsampling an image, 280
- USB (Universal Serial Bus), 95
- vertical LED scale, 162
- video cable, 88
- Video Output, 222
- Viewer Mail, 290
- viewfinder, 67, 113
 - LEDs, 56
- vignetting, 41

Waterfalls, 374
wedding photographers, 28
White “P” Program mode, 61
White Balance, 165
 Bracketing, 187
wide-angle lenses, 40

wireless flash, 26, 172, 180, 246
 ratio, 260
Wood is Good T-shirt, 103
Yes / No Confirmation screen, 82
Zone Matching, 27, 215
zoom in, 80



Finally, an easy-to-understand manual that is as good as the camera!

Gary Friedman's book on the Sony Alpha 100 DSLR provides a complete instruction manual which explains each feature in plain English and provides hundreds of visual examples as well.

In this book you'll learn:

- ✓ What every mode, knob, and button do - in plain, easy-to-understand text.
- ✓ The secrets of taking outstanding photos.
- ✓ All about details about Sony's Wireless Flash
- ✓ The most common digital "jargon" and what it all means to you.
- ✓ An introduction to the Picture Motion Browser software.



Get the most out of your investment - Learn about the wonders of digital imaging and improve your photography at the same time!