Kodak Professional

DCS 300 Series Digital Cameras

User's Guide

for DCS 300 Series Digital Cameras

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About Your Camera

Thank you for purchasing your new KODAK PROFESSIONAL DCS 300 Series Digital Camera. This portable camera system combines features of the Nikon Pronea 6i camera with digital camera features developed by Eastman Kodak. Your camera retains many of the features of the Pronea camera. This User's Manual describes the digital aspects of your camera as well as the Pronea camera features.

To effectively use your camera, you should read this manual as well as the KODAK PROFESSIONAL DCS Host Software User's Manual (on the DCS Host Software CD included with your camera).

The TIFF Custom file format (page 4-8) is proprietary to Kodak. To use TIFF Custom images, you will first need to acquire (import) them through a program such as Photoshop, using the Kodak Software (also on the DCS Host Software CD). If you try to open these files in Photoshop or other applications without first acquiring them, only the thumbnail version will be available. Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual for information on acquiring images.

Package Contents

Check that the items below and on the next page are included in your camera package.

- ✔ DCS 315 or DCS 330 camera (with battery tray and handstrap)
- ✔ Extra battery tray
- ✔ 52 mm Hot mirror (DCS 315 only)
- ✔ AC adapter
- ✔ U.S. power cord
- ✔ Kodak DCS 300 Series User's Manual (English)
- ✔ Quick Start guide (English)
- ✔ Service agreement information
- ✔ U.S. Warranty card
- ✔ International Warranty card
- ✔ CD containing the following items related to the DCS 300 Series camera:
  - The following items in French, Italian, German, Spanish, Japanese, and English:

    DCS 300 Series User's Manual

    DCS 300 Series Quick Start card
  - Adobe Acrobat Reader to view or print the manuals
  - ReadMe files
- ✔ DCS Host Software CD containing the following items related to the Kodak Software:
  - Photoshop Acquire Module for Macintosh
  - TWAIN Data Source for Windows
  - Installer software
  - KODAK PROFESSIONAL DCS Host Software User's Manual in French, Italian, German, Spanish, Japanese, and English
  - Adobe Acrobat Reader to view or print the manual
  - ReadMe files

Camera Accessories

Contact your camera dealer or the Kodak web page (http://www.kodak.com/) for camera accessories.

Features

Your camera, which integrates Nikon SLR functionality with Kodak digital camera technology, provides a rich set of features that allows you to capture images of the highest quality. The following features are available in both the DCS 315 and 330 cameras:

Accessories/Computer Interface:

- ✔ DCS 315: accepts removable Nikon IX-Nikkor AF and F-mount lenses.
  DCS 330: accepts removable Nikon F-mount lenses.
  Refer to “Lenses” on page 1-19.
- ✔ Dual PC Card slots hold one Type III or two Type II or ATA PC cards. (The forward PC Card slot is currently inactive. It can be used to store an extra Type II PC Card)
- ✔ High speed IEEE 1394 serial interface
- ✔ Accepts six removable AA format batteries or the Kodak-specified AC Adapter

Image Quality:

- ✔ Automatic scene balance which includes both color and exposure (±1 stop)
- ✔ 10 bit per channel color depth for a total of 30 bits pixel depth
- ✔ DCS 315: focal length conversion of 2.6x with standard Nikkor lenses
  DCS 330: focal length conversion of 1.9x with standard Nikkor lenses

Image Management:

- ✔ DCS 315: Images saved as TIFF Custom and/or one of three levels of finished JPEG files
  DCS 330: Images saved as TIFF Custom
- ✔ Image tag and delete capability
- ✔ Records and associates sound files with images
- ✔ Date/time stamp and thumbnail stored with each image

Image Information:

- ✔ 1.8 inch Image LCD panel provides review of images and other functionality
- ✔ Image histogram and exposure information

Flash:

- ✔ Built-in integrated flash; supports Nikon SB series flash attachments

Mechanical:

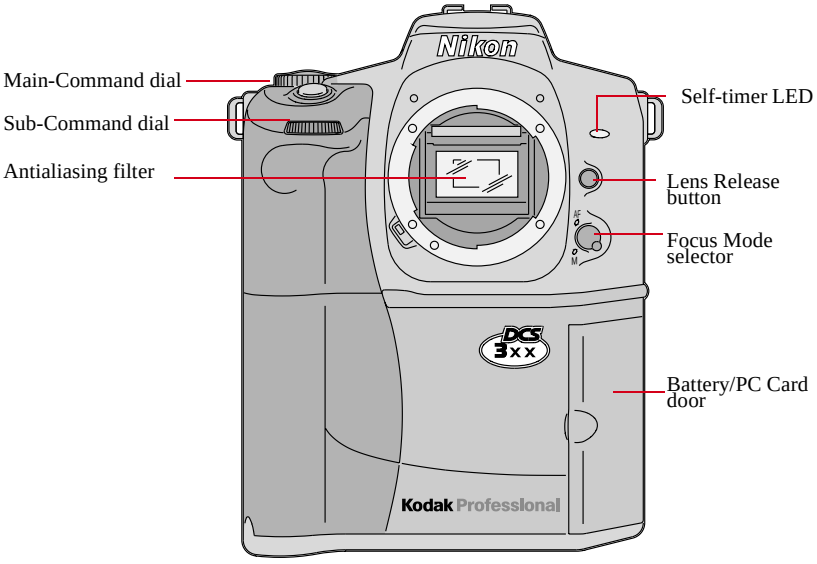
- ✔ 1/4 inch x 20 inch tripod mount
- ✔ Height: 174 mm, width: 137 mm, depth: 76 mm, weight: 1.8 kg.

The table below lists the features that differ for the DCS 315 and DCS 330 cameras:

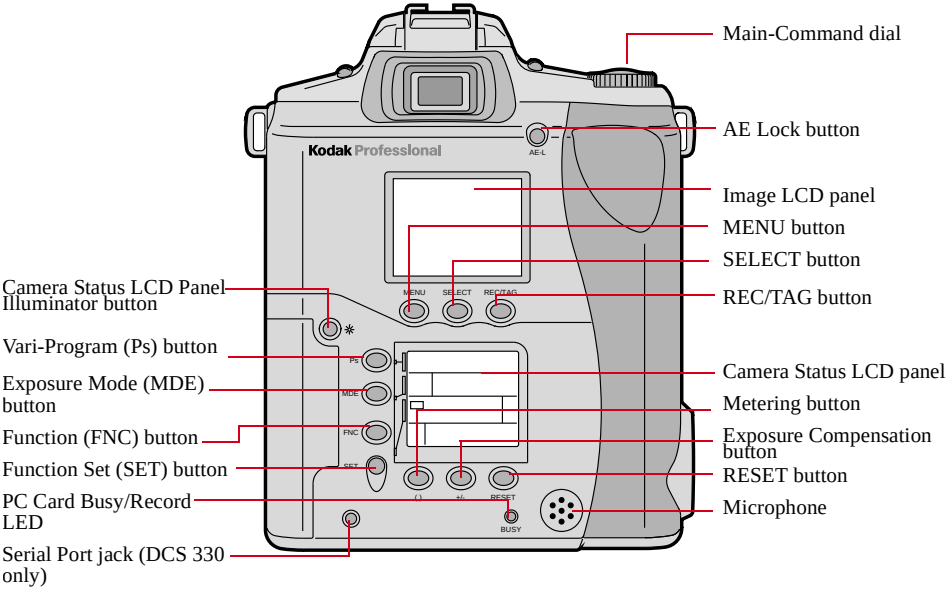
Feature	DCS 315	DCS 330
Image Size	1.5 million pixels (1008 x 1520) 2:3 aspect ratio	3 million pixels (1504 x 2008) 3:4 aspect ratio
Approximate Finished File Size	TIFF - 1.7 MB JPEG Best - 650 KB JPEG Better - 350 KB JPEG Good - 200 KB	TIFF - 3.3 MB
ISO	100 - 400	125 - 400
Burst	2 frames/second burst for 3 images every 11 seconds with Type III PC Card	1 frame/second burst for 8 images
Time from capture to storage and thumbnail display	2 seconds	7 seconds (Time depends on the number of images in the burst)
Time to process and store finished JPEG Best in the camera	Under 25 seconds per image	
Antialiasing Filter	Not included	Included

Camera Nomenclature

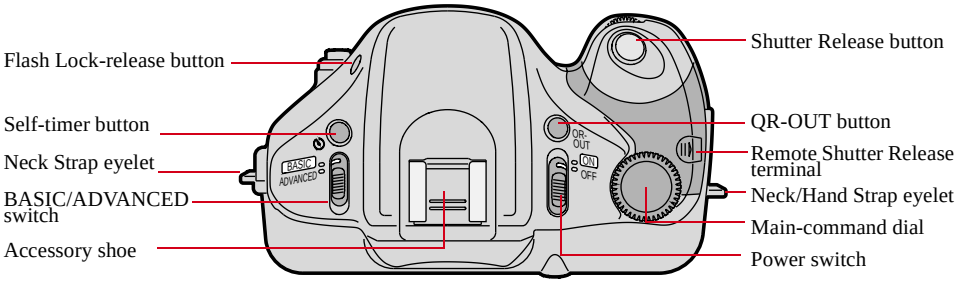
Camera Front



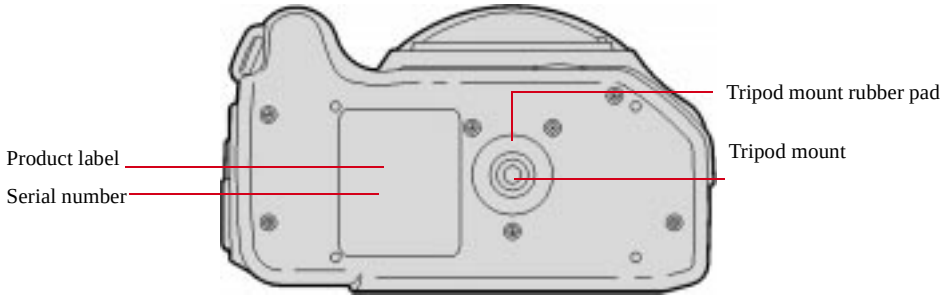
Camera Back



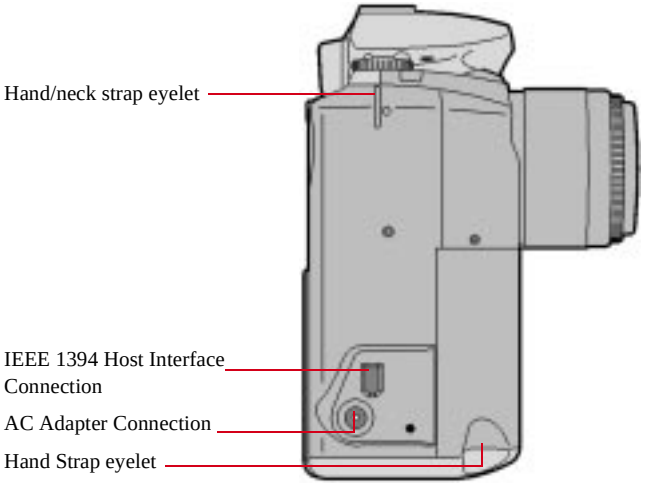
Camera Top

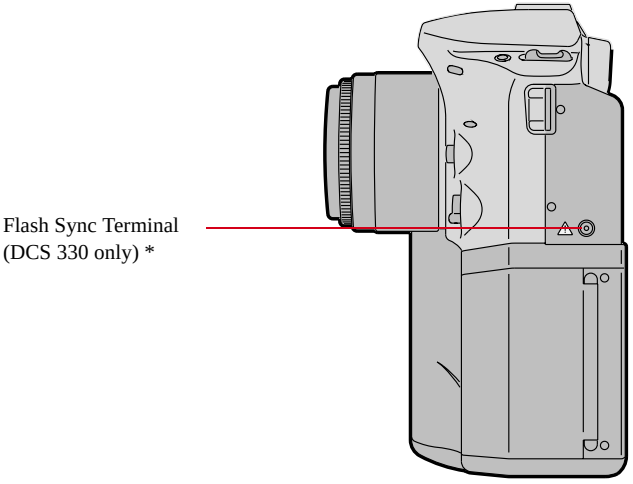


Camera Bottom



Camera Sides





* The yellow triangle with a black "!" near the flash sync terminal is intended to warn you of the following:

WARNING: ⚠

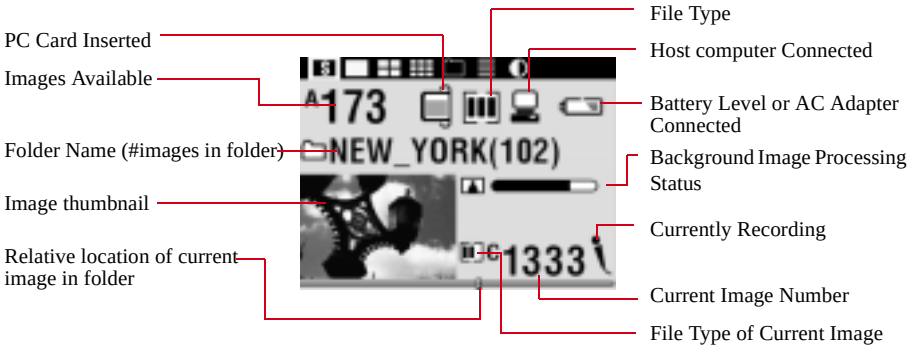
The Flash Sync terminal is for a flash sync cable system ONLY! DO NOT CONNECT AC MAIN POWER TO THIS CONNECTOR! Doing so can create a hazardous condition.

LCD Panels and LEDs

Image LCD Panel

Use the Image LCD panel for the following:

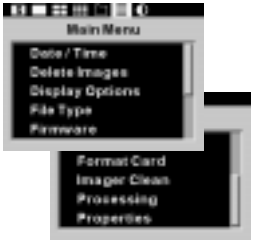
- ✔ View status information (page 9-8).



- ✔ Review images in Single, Four, or Nine Image Review mode (page 9-1).

- ✔ Select folders to hold images (page 4-6).

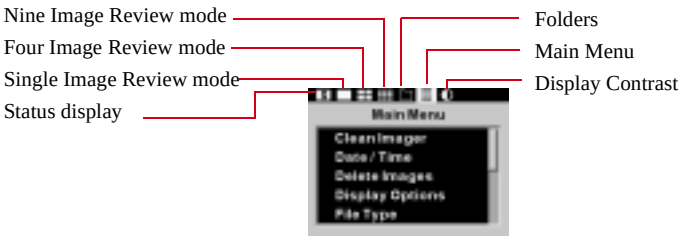
- ✔ Select camera functions using the Main Menu.



Menu Bar

You can choose Status information, Single, Four, or Nine Image Review mode, Folders, Main Menu, or Display Contrast by pressing and holding the MENU button and using the Main-Command dial to make your selection from the Menu bar (at the top of the Image LCD panel).

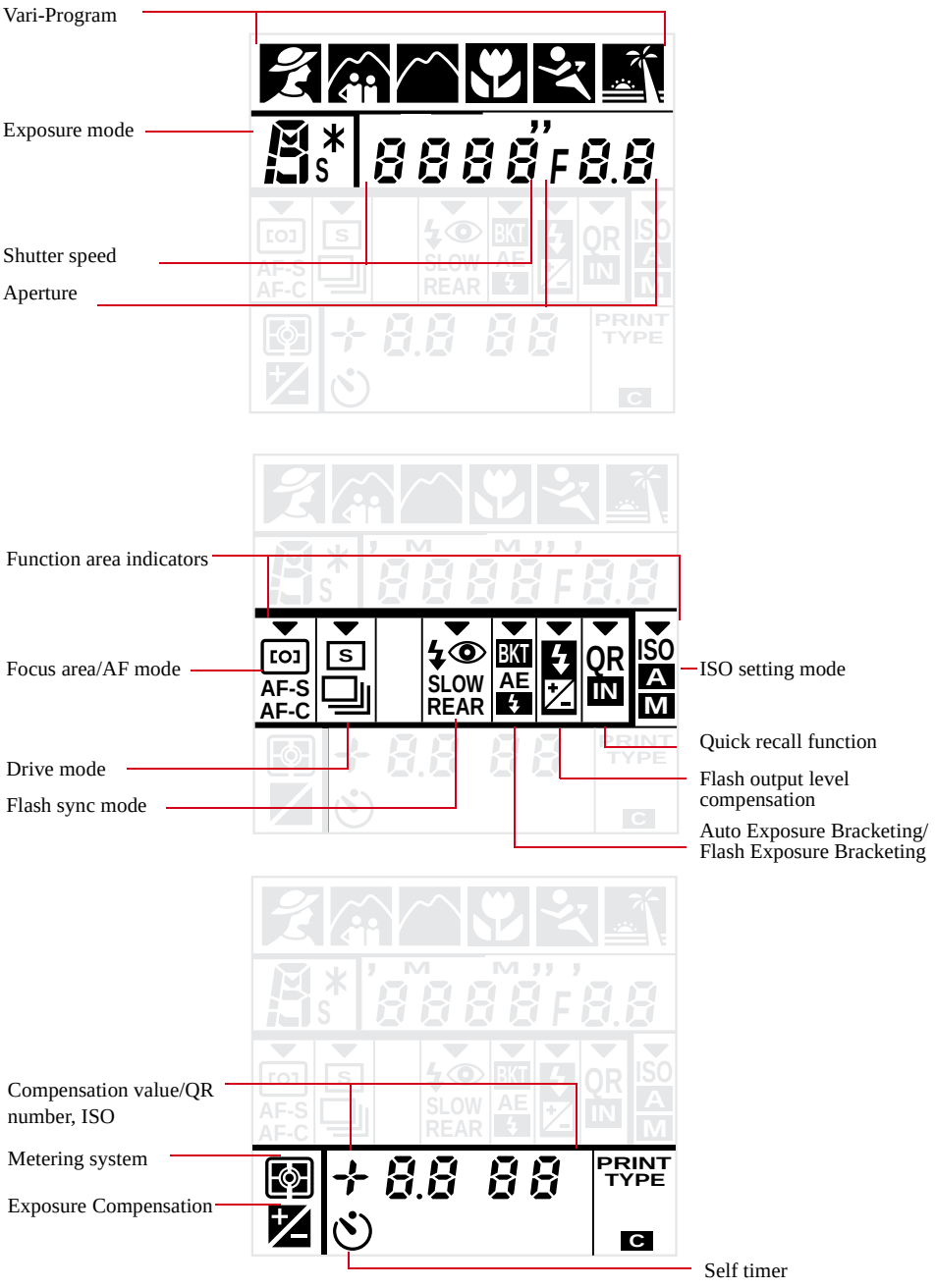
Refer to “Main-Command Dial” on page 1-14 or “MENU Button” on page 1-16.

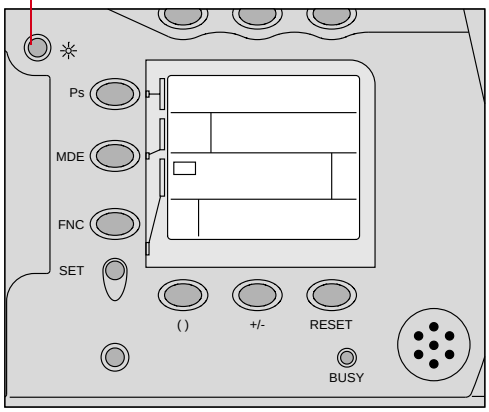


Camera Status LCD Panel

The Camera Status LCD panel provides information on the settings and controls necessary for the operation of a professional SLR camera (such as ISO, focus, and Exposure mode).

The Camera Status LCD panel is shown in three sections on the next page.


Vari-Program
Exposure mode
Shutter speed
Aperture
Function area indicators
Focus area/AF mode
AF-S
AF-C
SLOW
REAR
BKT
AE
QR
IN
ISO
A
M
PRINT
TYPE
C
ISO setting mode
Quick recall function
Flash output level compensation
Auto Exposure Bracketing/ Flash Exposure Bracketing
Drive mode
Flash sync mode
Compensation value/QR number, ISO
Metering system
Exposure Compensation
Self timer



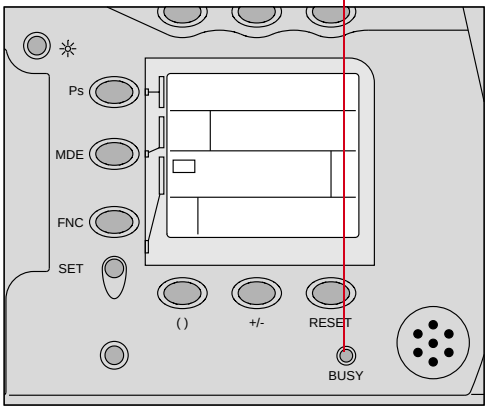
Press the LCD Panel Illuminator button.

The LCD panel illuminator switches Off when you press the LCD Panel Illuminator button again or when you lightly press the Shutter Release button. It will also switch Off automatically after a few seconds.

Effects of Temperature on LCD Panels

- ✔ At high temperatures (60° C/140° F or higher), the LCD panels turn black, making it difficult to read displayed information. When the temperature drops, the display can be read normally again.
- ✔ At low temperatures (4° C/40° F or lower), the LCD's response time slows. When the temperature rises, the display works normally again.

PC Card Busy/Record LED



The PC Card Busy/Record LED appears in different colors depending on camera activity.

LED Color	Camera Activity
Red	PC Card is busy
Green	Sound is being recorded
Yellow	PC Card is busy and sound is being recorded
No light	None of the above

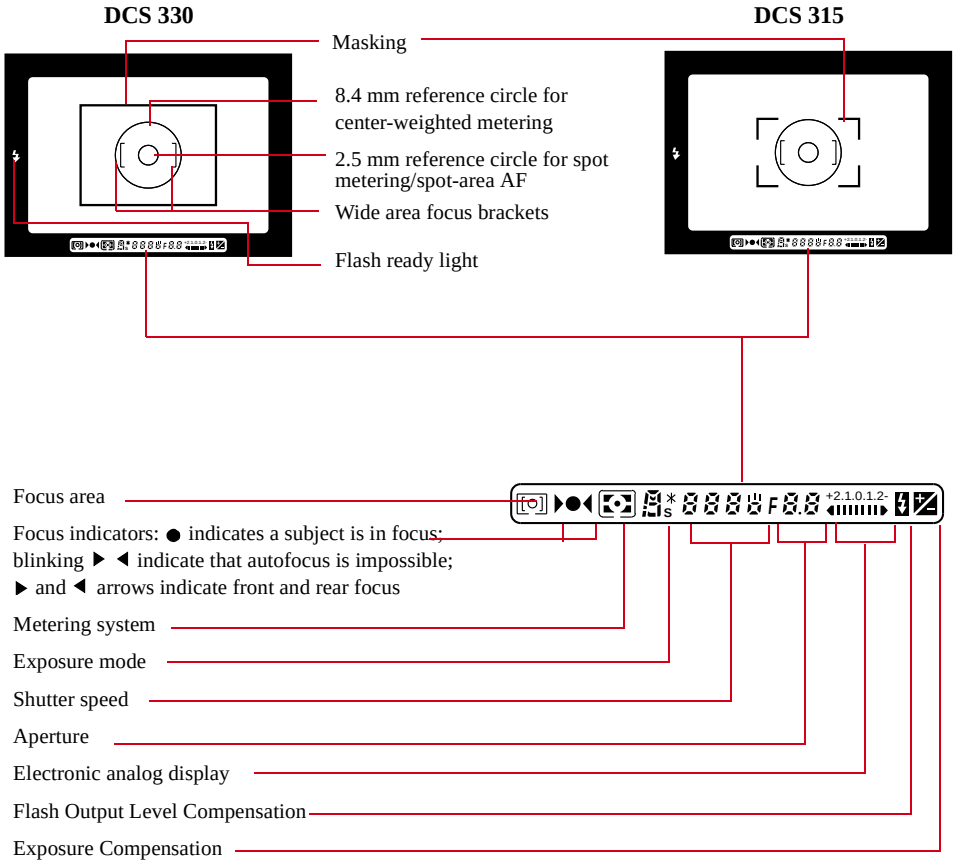
☞ Although steps have been taken to safeguard your images, it is possible to corrupt the PC Card or lose images if the PC Card is removed during disk writes. Check that the PC Card Busy light is not blinking before removing a PC Card.

Viewfinder

The DCS 300 series camera is an integration of Eastman Kodak Company electronics and a Nikon Pronea 6i camera body. The camera body was originally designed for use with Advanced Photo System film. Because the electronic imager in your DCS 300 series camera is smaller than a negative of a film frame, the field of view of the camera's viewfinder is larger than what will actually be captured by the electronic imager.

The DCS 315 and DCS 330 viewfinders are seen below. The heavy black masking surrounding the 8.4mm-diameter reference circle indicates the area of the scene that will be captured when the shutter is released.

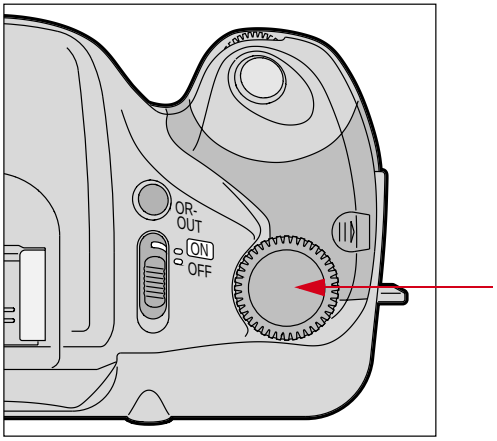
This field of view limitation has implications regarding the lenses used with the camera. Refer to Appendix E (Focal Length Conversion).



Dials and Buttons

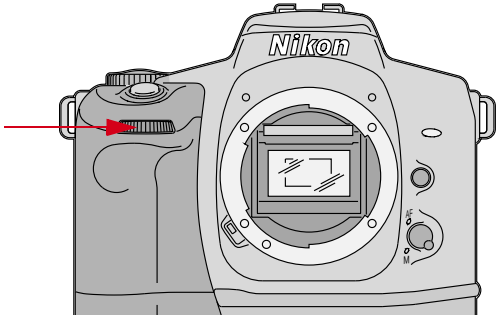
Main-Command Dial

You use the Main-Command dial with the digital function buttons (page 1-15) or the non-digital function buttons (page 1-17) to access a variety of digital and SLR camera functions.



Sub-Command Dial

You use the Sub-Command dial when setting the aperture.



Digital Function Buttons

There are three buttons associated with your camera's digital functions (outlined on the next page and described throughout the manual). You can access the digital functions when you use the buttons in conjunction with the Main-Command dial and the Image LCD panel.

MENU Button

- ✔ Press and release the button to turn the Image LCD panel On or Off. Refer to “Image LCD Panel” on page 1-8.

☞ The Image LCD panel may illuminate unevenly after you insert a new battery or first turn the camera On. You can correct the problem by turning the Image LCD panel Off, then back On.

- ✔ Press and hold the button and rotate the Main-Command dial to scroll through the Menu bar icons at the top of the Image LCD panel.
- ✔ Press and release to exit menus.
- ✔ Press this button and the SELECT button simultaneously to delete the currently selected image. Refer to “Deleting One Image” on page 9-12.

SELECT Button

- ✔ Press and hold the button and rotate the Main-Command dial to scroll through images or menu options. Release it to select the desired image or menu option.
- ✔ Press this button and the MENU button simultaneously to delete the current image.
- ✔ Press and release to display the Histogram and Image information. Refer to “Viewing Overexposure Areas and Histogram Information” on page 9-5.

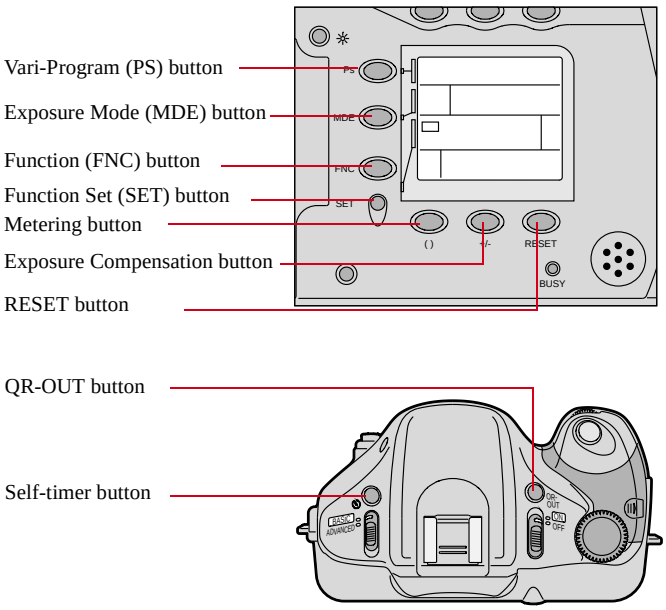
REC/TAG Button

- ✔ Press and quickly release the button to tag (or untag) the currently selected image. You can tag images that you do not want deleted. Refer to “Tagging an Image” on page 9-9. You can also tag images that you want to group for operations available in the Kodak Software. Refer to the KODAK PROFESSIONAL DCS Host Software User’s manual on the included DCS Host Software CD.
- ✔ Press and hold the button, wait for the Currently Recording icon to appear on the Status screen of the Image LCD panel or the PC Card Busy/Record icon to turn green. Speak into the microphone to record a sound file. Refer to “Associating Sound Files With Images” on page 9-10.

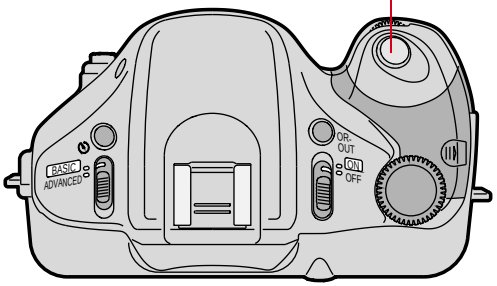
Non-Digital Function Buttons

The table below describes the non-digital buttons:

Button	Function	Camera Status LCD panel	Reference
Ps	Vari-Program		page 6-3
MDE	Exposure mode	***P S A M***	page 6-10
FNC	Select function		
SET	Set selected function		
Metering	Metering system		page 6-27
Exposure Compensation	Exposure Compensation	+/-	page 7-3
Ps and Reset	Two-Button Reset		page 6-41
Self-timer	Self-timer operation		page 7-1
QR-OUT	QR Recall	--1- --2- --3-	page 7-12



Shutter Release Button



Firmly pressing the Shutter Release button captures an image.

Lightly pressing the Shutter Release button activates the exposure meter, Camera Status LCD panel and viewfinder indications. Autofocusing begins (unless the camera is set for manual focusing).

Lightly pressing the Shutter Release button causes the Image LCD panel to turn Off (if it was On). When you release your finger it will turn back On.

☞ On rare occasions you might detect a slight pause between the time you firmly press the Shutter Release button and hear the mirror actuate. This occurs when the camera is in a critical processing state where it must finish several tasks before allowing a new image capture to begin.

The Imager

The imager is the component that records light when you capture an image. It is located behind the lens mount, and under the mirror and shutter. The specifications for the imager are noted below:

Camera	Horizontal Pixels	Vertical Pixels	Total Pixels	Horizontal Dimension	Vertical Dimension
DCS 315	1520	1008	1532160	13.7 mm	9.1 mm
DCS 330	2008	1504	3020032	18.1 mm	13.5 mm

Lenses

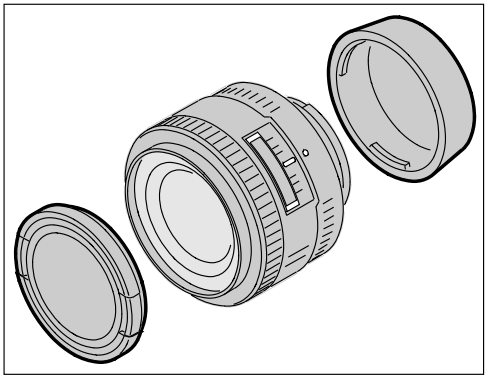
The following list provides an overview of Nikkor CPU lenses that can be used with your camera. (Refer to Appendix C for a complete list of compatible and incompatible lenses.)

- ✔ D-type AF Nikkor lenses (including AF-I and AF-S Nikkor lenses)
- ✔ Non-D-type AF Nikkor lenses (except AF Nikkor for F3AF)
- ✔ AI-P Nikkor lenses (manual focus only)
- ✔ IX-Nikkor lenses

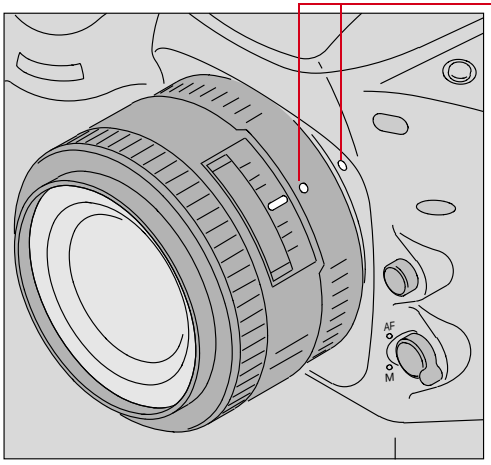
CAUTION: ⚠

You can use IX-Nikkor lenses with the DCS 315 camera. You cannot use IX-Nikkor lenses with the DCS 330 camera unless you first remove the antialiasing filter. You will break the antialiasing filter if you attempt to install an IX-Nikkor lens on the DCS 330 camera when the filter is in place.

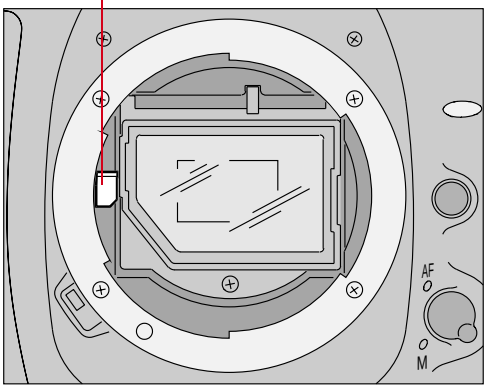
Mounting the Lens



1. Turn the camera Off.
2. Remove the camera body cap and the front and rear lens caps.



3 Position the lens in the camera's bayonet mount so that the mounting indexes on the lens and camera body are aligned. Taking care not to press the lens release button, twist the lens counterclockwise until it locks in place.



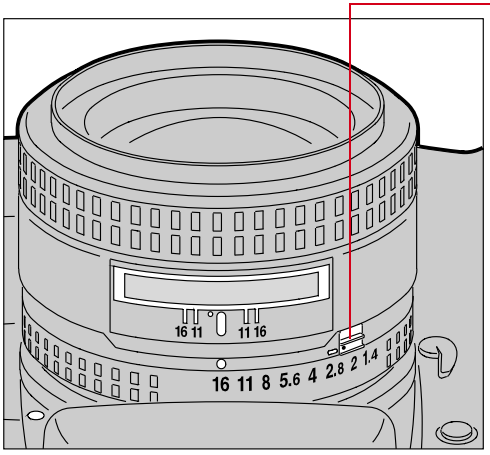
CAUTION:

Do NOT use the IX-Nikkor lens with the DCS 330 camera unless you first remove the antialiasing filter.

With the DCS 315 camera, mount the IX-Nikkor lens carefully. Do not bump the aperture coupling lever inside the camera's mounting flange against the rear edge of the lens. A damaged aperture coupling lever could cause the camera to malfunction.

Setting the Lens to the Minimum Aperture

For all Exposure modes with lenses other than the IX-Nikkor, set the lens to its minimum aperture. (The minimum aperture will vary, depending on the lens.)



1 Set the lens to its minimum aperture.

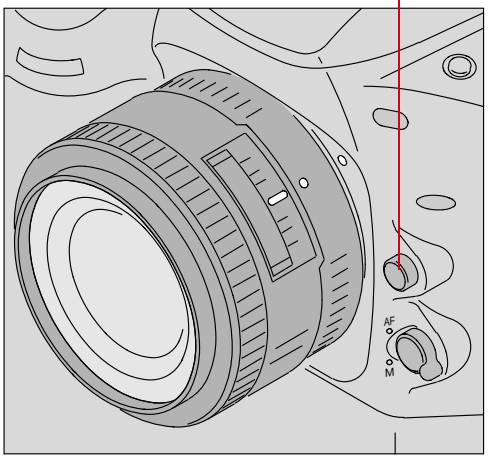
2 Slide the lock lever in the direction of the aperture ring so that the white dot on the tab aligns with the orange dot.

Slide the lock lever in the opposite direction to release the lock.

Aperture setting operations are performed using the Sub-Command dial. Do not move the aperture ring on the lens once it is set to its minimum aperture.

When the lens is not set to its minimum aperture and the camera is turned On, **FEE** blinks in the Camera Status LCD panel and inside the viewfinder. The shutter locks.

Removing the Lens



Press and hold the Lens Release button, then turn the lens clockwise.

☞ If you are storing the camera without the lens attached, you should always attach the body cap.

Non-CPU Lenses and Lens Adapters

You should be aware of the following when using non-CPU lenses:

- ✔ If you are using a microscope adapter, you will need to set the camera to Manual Exposure mode (**M)**.
- ✔ In Manual Exposure mode (**M), t**he camera's exposure meter does not function. For exposure metering, use the camera's Histogram feature (page 9-5) or use an external exposure meter.
- ✔ Set the Exposure mode to Manual (**M)**. (In other Exposure modes, the shutter is locked.)
- ✔ The shutter speed indication appears in the Camera Status LCD panel and inside the viewfinder. Set the shutter speed by rotating the Main-Command dial. The f-number of the aperture will not be visible in the Camera Status LCD panel or the viewfinder. (**F--** always appears.) Set the aperture by rotating the lens aperture ring.

Antialiasing Filter

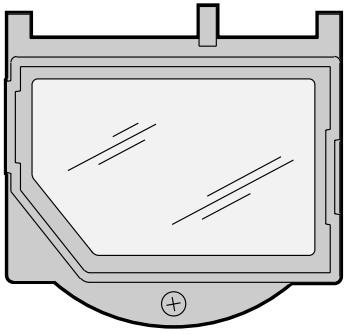
DCS 315:

This camera does not have an antialiasing filter.

DCS 330:

This camera has an antialiasing filter which helps to reduce aliasing at certain focal distances.

If you remove the antialiasing filter from your DCS 330 camera, you will need to use a hot mirror (page 1-24). Refer to “Removing, Cleaning, and Re-installing the Antialiasing Filter” on page 11-3.



CAUTION: ⚠

You can use IX-Nikkor lenses with the DCS 315 camera. With the DCS 330, you can only use IX-Nikkor lenses if you first remove the antialiasing filter. You will break the antialiasing filter if you attempt to install an IX-Nikkor lens when the filter is in place.

Hot Mirrors (IR Filters)

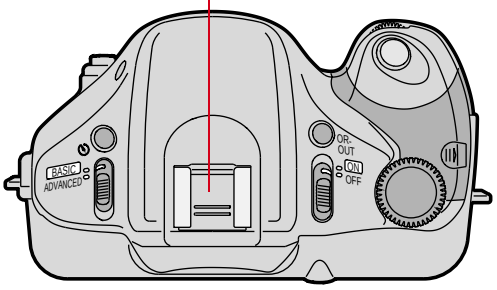
DCS 315:

We recommend that you use a hot mirror (an IR filter which filters out IR light that the imager is sensitive to). A hot mirror is included in your camera package.

DCS 330:

This camera has a coated antialiasing filter that makes it unnecessary to use a hot mirror. If you remove the antialiasing filter, you will need to use a hot mirror. There is no hot mirror included with the DCS 330 camera.

Accessory Shoe



The ISO-type hot shoe allows direct mounting of a wide range of Nikon dedicated, electronic Speedlights. Refer to “Using Accessory Nikon Speedlights” on page 8-23.

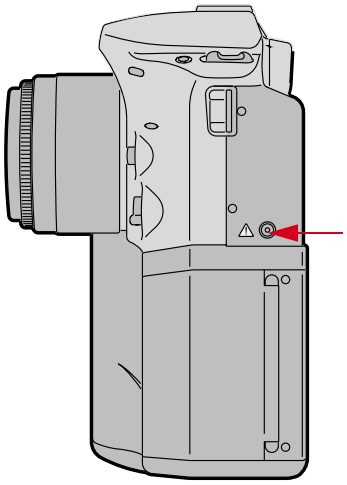
CAUTION: ⚠

Only use Nikon Speedlights. Other units may damage the camera’s electrical circuits due to incompatible voltage requirements, electric contact alignment, switch phase, or extra hot shoe contacts which can damage your camera.

Flash Sync Terminal

The flash sync terminal, only available with the DCS 330 camera, will trigger a flash that uses a standard X-Sync cord. Refer to “Flash Sync Terminal” on page 8-26.

☛ The Sync flash cord/connector set is not supplied with the camera.



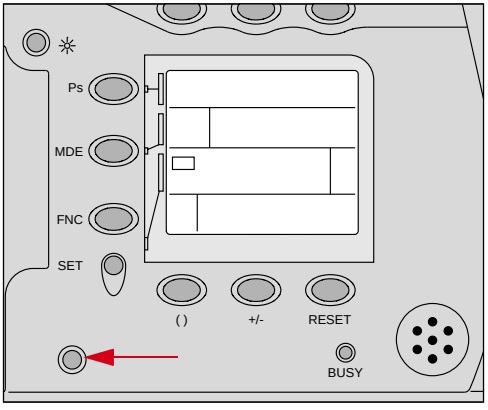
WARNINGS: ⚠

Flashes with a trigger circuit voltage greater than 30V DC will damage your camera and can be hazardous.

The Flash Sync terminal is for a flash sync cable system ONLY! DO NOT CONNECT AC MAIN POWER TO THIS CONNECTOR!

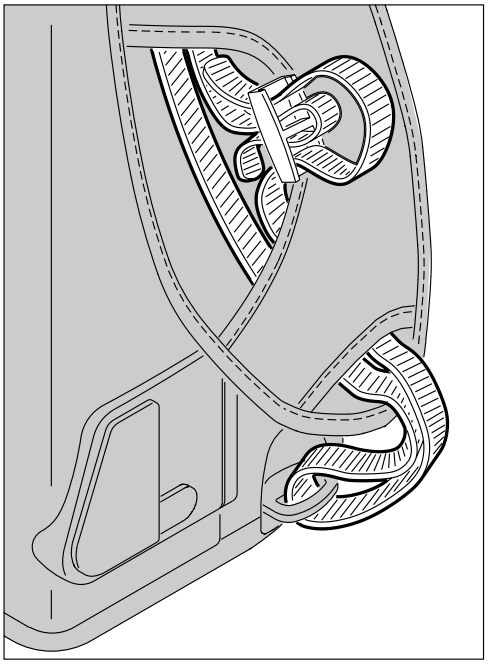
Serial Port Jack

The Serial Port jack, only available with the DCS 330 camera, is reserved for future applications. It has a soft rubber cover (not shown). Do not remove the cover or plug anything into the jack.



Attaching the Hand Strap

A hand strap is included with your camera.



1. Thread the strap through the hand strap pad.
2. Place the strap through the camera's top and bottom strap fixtures.
3. Thread both ends of the strap back through the loops on the hand strap pad.
4. Place the two-holed buckle on the top strap.
5. Tuck the top strap through the bottom loop in the hand strap pad.
6. Thread the bottom strap through the two-holed buckle as shown.
7. Tuck the bottom strap through the top loop in the hand strap pad.

☞ Ensure that the strap is secure before relying on it to carry the camera.

Important Safeguards and Precautions

The exclamation point in an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying your camera.

- ✔ **Read Instructions**—Read all the safety and operating instructions before operating your camera.
- ✔ **Follow Instructions**—Follow all operating and usage instructions.
- ✔ **Controls**—Adjust only those controls that are covered by the operating instructions.
- ✔ **Heed Warnings**—Heed all warnings on your camera and in the operating instructions.
- ✔ **Retain Instructions and Packaging**—Retain the safety and operating instructions for future reference. Retain the packing case for use if your camera needs to be shipped.
- ✔ **Handling**—Handle your camera with care. Treat the imager and the antialiasing filter as you would your best lens. Do not drop your camera. Do not place your camera on an unstable cart, stand, bracket, or table. It can fall, causing serious injury to persons and serious damage to your camera.
- ✔ **Dust**—If you operate the camera in environments with excessive dust levels, dust may accumulate on the camera.
- ✔ **Water and Moisture**— Do not use the camera in heavy rain or near salt spray and do not immerse your camera in water or other liquids. Do not use the AC adapter near water—for example, near a sink, or in a wet room or basement.
- ✔ **Object or Liquid Entry**—Never push foreign objects of any kind into your camera openings. The objects could touch dangerous voltage points or short out parts and cause a fire or electric shock. Never spill liquid of any kind on your camera.

- ✔ **Attachments**—Do not use attachments that are not recommended. The use of such attachments may cause hazards and cause serious damage to your camera.
- ✔ **Power Sources**—You should operate your camera only from the type of power source indicated on the name plate of the AC adapter. If you are not sure of the type of AC power that will be used, consult a dealer or local power company.
- ✔ **Overloading**—Do not overload power outlets and extension cords; this can result in a risk of fire or electric shock.
- ✔ **Flash Sync terminal**— For a flash sync cable system ONLY! DO NOT CONNECT AC MAIN POWER TO THIS CONNECTOR!
- ✔ **Cables**—Use only an IEEE 1394 cable to attach the camera to the computer. If you use other cables, you may violate FCC emission requirements.
- ✔ **Power-Cord Protections**—Route power-supply, and other cords, so that you are not likely to walk on them or pinch them with items placed on or against them. Pay particular attention to cords at plugs, receptacles, and the point where they leave your camera.
- ✔ **Grounding**—The AC adapter is equipped with a three-wire grounding-type plug with a third (grounding) pin. The three-wire plug will fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace the outlet. Do not defeat the safety purpose of the grounding-type plug.
- ✔ **Lightning**—For added protection for your camera during a lightning storm, or any time when you will leave your camera unattended and unused for long periods of time, unplug the AC adapter from the power outlet and disconnect the camera from the computer. This will protect your camera from damage caused by lightning or power-line surges.
- ✔ **PC Cards**—PC Cards (not supplied with the camera) are fragile devices that can be damaged if not treated with care. Refer to the documentation accompanying your PC Cards to ensure that you are handling the PC Card as specified in that documentation, and that you are using the PC Card within its operating ranges for temperature, humidity, condensation, etc.
- ✔ **Humidity, Condensation**—We recommend operating your camera within the range of 8% to 85% relative humidity, non-condensing. If condensation occurs, added time may be required to read from or write to a PC Card. Condensation may be present if the camera system and PC Cards are moved from a relatively cold environment (like an air conditioned building), into a warm, humid environment. We recommend that you allow sufficient time for the camera system and PC Cards to normalize within the specified environmental ranges before operation. (PC Cards may have more restrictive humidity ranges. Refer to the specifications that came with your PC Cards.)

- ✔ **Servicing**—Do not attempt to service your camera yourself. Opening or removing covers may expose you to dangerous voltage or other hazards and void the warranty.
- ✔ **Damage Requiring Service**—Unplug your camera from the wall outlet and computer, and refer all servicing to the manufacturer under the following conditions:
  - If liquid has been spilled or if objects have fallen into your camera.
  - If your camera has been exposed to heavy rain or water. (While it is designed to tolerate a reasonable amount of water, it is not waterproof.)
  - If your camera does not operate normally according to the operating instructions.
  - If your camera has been dropped or the housing has been damaged.
  - When your camera exhibits a distinct change in performance.
- ✔ **Disassembling the Camera**—Never attempt to take the camera apart. The camera is shipped as a single unit. Do not disconnect the parts (except when cleaning an antialiasing filter or imager).

Electromagnetic Emissions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning your camera off and on, you can try to correct the interference by one or more of the following measures:

- ✔ Reorient or relocate the receiving antenna.
- ✔ Increase the separation between your camera and receiver.
- ✔ Connect your camera into an outlet on a circuit different from that to which the receiver is connected.
- ✔ Consult the dealer or an experienced radio/TV technician for help.

This equipment conforms with the requirements of European Standard EN55022 with respect to radio interference for a Class B device.

Le present appareil numérique n’émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe B prescrites dans les règlements sur le brouillage redioélectrique édictés par le Ministère des Communications du Canada.

This digital apparatus does not exceed the class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

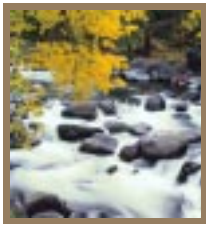
VCCI Statement

情報処理装置等電波障害自主規制について

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをしてください。



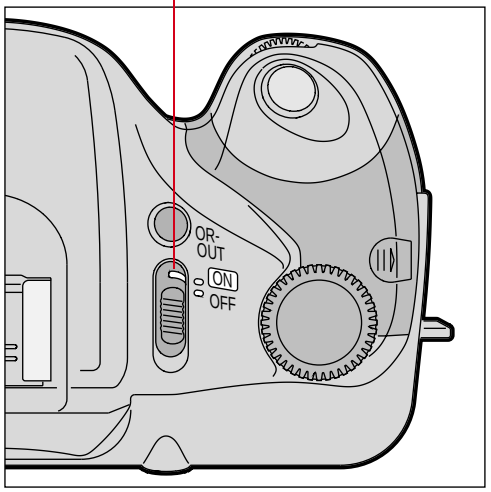
Powering Your Camera

Before using your camera, you must insert batteries or connect the camera to the Kodak-specified AC adapter. Two battery trays and a Kodak-specified AC adapter are included with your camera.

When shooting outdoor scenes or in any location where AC power isn't convenient, you will power the camera with batteries. When working indoors, you may want to use the Kodak-specified AC adapter. Using the integrated flash or the Image LCD panel, processing TIFF files into finished JPEG images, or extensive AF operation will shorten battery life.

When your camera is connected to a computer, you can use batteries, the Kodak-specified AC adapter or both, but since lengthy computer sessions can shorten battery life it is recommended that you use the AC adapter.

Turning the Camera On and Off



Slide the Power switch to On to turn the camera On.

Slide the Power switch to Off to turn the camera Off.

☛ There may be a short delay before the camera turns Off if there are camera activities such as PC Card updates that need to be completed.

IMPORTANT:

Do not turn the camera Off during an exposure. Doing so can leave the mirror in the up position, and the viewfinder will appear black. You will also lose the image. If this should occur, the mirror will return to the down position when you turn the camera back On.

Batteries

You will need six AA format batteries. You may use rechargeable batteries, but they must be re-charged using the battery manufacturer's recommended battery charger.

CAUTION: ⚠

You must only use 1.5-volt AA batteries with your DCS 315 or DCS 330 camera. Inserting 3 volt lithium batteries will damage your camera

The number of shots per battery set depends on both the battery chemistry and usage.

Kodak does not recommend the use of standard alkaline batteries for this camera. It is expected that you will experience 200 image captures or more, under normal usage, when using high quality/high capacity batteries, for example, NiCAD (nickel-cadmium), NiMH (nickel metal hydride), or High Energy Lithiums.

As the charge in the batteries gets low, the camera may operate erratically. For example, there may be excessive integrated flash charging times or excessive time required between image captures.

Third party external battery packs compatible with this camera may be available. Contact your Kodak camera dealer for more information.

Handling and Disposing of Batteries

For inadvertent human contact with battery electrolyte, contact the Kodak Information Center at 1-800-242-2424.

In the unlikely event that a battery leaks, the Kodak Information Center will provide information to U.S. customers on removing battery electrolyte from camera components such as the battery compartment or camera lens. Outside the United States, contact the equivalent regional number.

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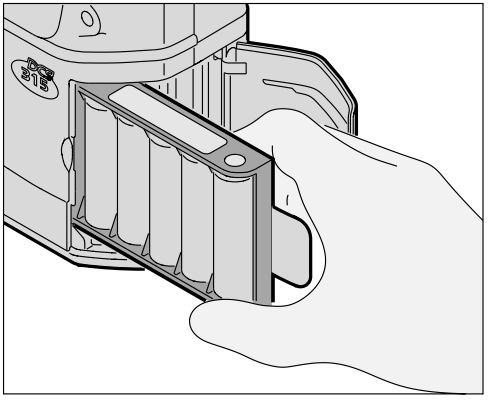
WARNING: ⚠

Batteries may explode or cause burns if disassembled, shorted, exposed to high temperatures, or incinerated. Be sure to observe all precautions indicated on the battery package. Always keep batteries out of the reach of children and dispose of batteries in accordance with all applicable local and national regulations.

Utilize established community battery recycling programs where they are available. Consult the battery manufacturer for additional information.

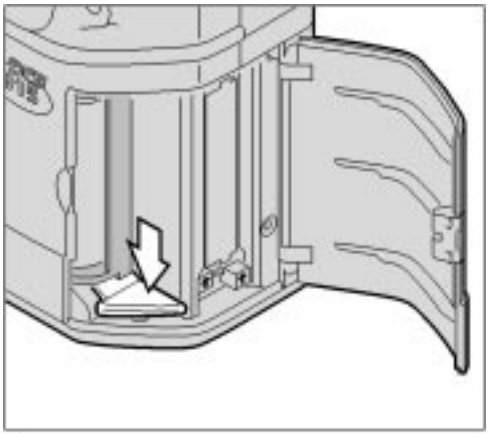
Inserting Batteries



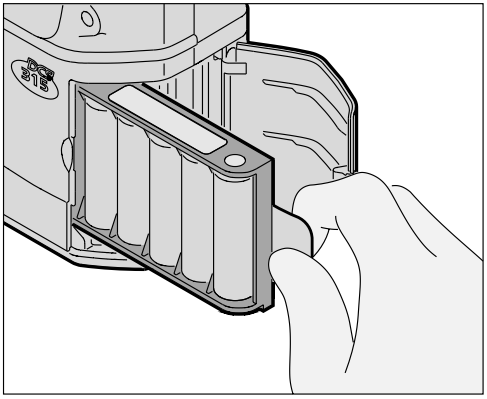
1. Turn the Camera Off.
2. Place six batteries in the battery tray in the proper orientation (indicated by markings in the battery tray).
3. Open the Battery/PC Card door.
4. Insert the battery tray into the battery tray slot until the tray is locked in place.

   The battery tray is “keyed” to prevent incorrect insertion.
5. Close and latch the Battery/PC Card door.

Removing Batteries



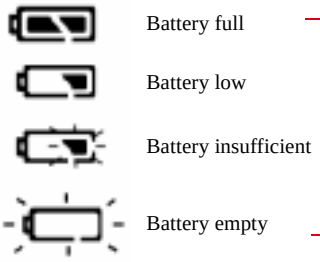
1 Press the Battery Tray Release button down.



2 Pull the tab on the battery tray to remove

Checking Battery Status

A Battery icon on the Image LCD panel informs you of the status of your camera batteries.



1. Turn the camera On.
2. Press and release the MENU button to turn the Image LCD panel On.
3. Press and hold the MENU button and rotate the Main-Command dial to highlight the Status Display icon.
4. Release the MENU button.

   The Status information appears on the Image LCD panel.

   The status of the batteries is indicated by the Battery icon which appears in one of four forms (shown at the left).
5. If the batteries are low, replace them or connect your camera to the Kodak-specified AC adapter.

☞ You cannot capture images when the Battery insufficient or Battery empty icon is blinking.

Always check the battery status at the following times:

- ✔ After inserting new batteries
- ✔ After lengthy storage
- ✔ If the Shutter will not release
- ✔ In cold weather
- ✔ Before an important shooting assignment

You can also check battery power by lightly pressing the Shutter Release button. If the batteries are functioning properly, pressing this button activates the exposure meter, the Camera Status LCD panel, and the viewfinder indications. Autofocusing also begins unless the camera is set for manual focus.

Without the flash, if you remove your finger from the Shutter Release button, the LCD readouts go off approximately 2 seconds after the shutter is released. When the built-in flash or a Speedlight is activated, the LCD readouts stay on approximately 8 seconds after the shutter is released.

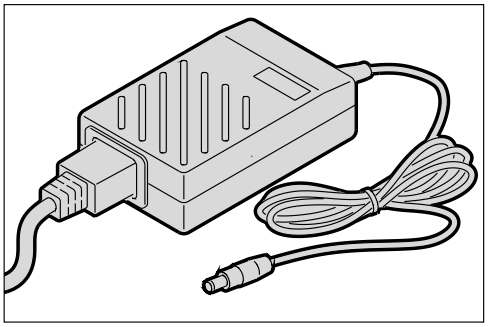
Battery Tips

- ✔ Do not use more than one type of battery at the same time.
- ✔ Do not use batteries with different charge levels at the same time. Replace all batteries at the same time and with the same brand.
- ✔ Batteries should be removed from the camera and carrier if the camera will be idle for five or more days. This will prevent battery discharge, and/or damage due to battery leakage.
- ✔ There is an error message that says: “Unable to take pictures. Batteries low. Batteries may recover with time.”

  This message means the charge in the batteries has dropped below the level needed to capture another image. It will appear when your batteries are exhausted and must be replaced or recharged. It may also appear after you have captured a rapid burst of several images. The burst of images may draw down the battery level, but after a period of inactivity, the batteries may recover and still be usable for capturing another 100 images. Do not assume that you batteries have to be replaced because you see this message one time.

Kodak-specified AC adapter

When working indoors or when your camera is connected to a computer, you may want to use the Kodak-specified AC adapter to conserve your batteries. A Kodak-specified AC adapter is packaged with your camera.



You can use the Kodak-specified AC adapter with or without batteries inserted. When using the AC adapter with batteries inserted, power will be supplied by the AC adapter.

☞ The AC adapter will not charge the batteries in the camera. If you use rechargeable batteries, you need the battery manufacturer's specified charger to recharge your batteries.

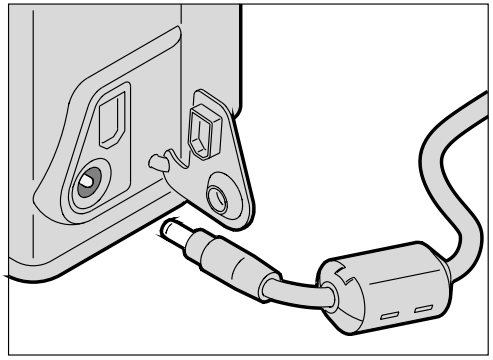
CAUTION: ⚠

- ✔ **Use ONLY the AC adapter that came with your camera, or the unit sold by Kodak as an accessory for the DCS 300 digital cameras. Other adapters will DAMAGE a DCS 300 series camera.**

  The connector used on the DCS 300 series AC adapter is not unique. Do not confuse this connector with the AC Adapter connectors intended for use with other electronic products.

- ✔ **Operate the Kodak-specified AC adapter only from the type of power source indicated on the AC adapter package. A line voltage outside of this range can destroy the AC adapter and the camera.**

Connecting the Kodak-specified AC adapter



1. Turn the Camera Off.
2. Plug the Kodak-specified AC adapter into the camera.
3. Insert the appropriate end of the power cord into the receptacle on the rear of the AC adapter.
4. Plug the power cord into a wall outlet.

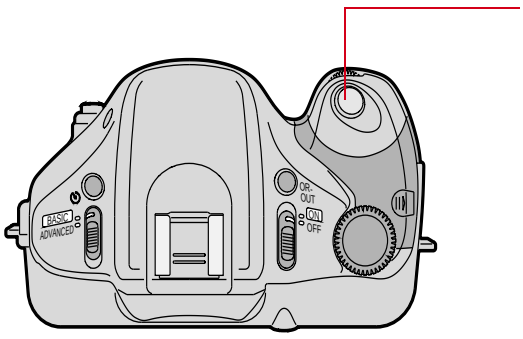
☛ If your camera loses power while the Power switch is in the On position, turn the camera Off and insert new batteries or attach the Kodak-specified AC adapter.

PowerSave Mode

Your camera has a PowerSave mode designed to improve battery life. There are three separate phases to PowerSave mode. If your camera is On, and you don't touch any controls for 8 seconds, 15 seconds, or 5 minutes, the following actions occur:

- ✔ Phase 1: After 8 seconds the Camera Status LCD panel turns Off and the Pronea body goes to sleep.
- ✔ Phase 2: After 15 seconds the Image LCD panel turns Off and the digital camera section goes to sleep. (You can change this time in Properties. Refer to "Setting The PowerSave Time" on page 3-11.)
- ✔ Phase 3: After 5 minutes the camera goes to "sleep" mode to reduce power consumption. This occurs only if the camera is powered by batteries. Your camera will not enter Phase 3 PowerSave mode when it is connected to the Kodak-specified AC adapter or connected to the computer with an IEEE 1394 cable (even if the camera is being powered by batteries).

Waking your Camera from PowerSave Mode



- ✔ Phase 1: Lightly press the Shutter Release button (soft press) to turn the Camera Status LCD panel On.
- ✔ Phase 2: Press the MENU button to turn the Image LCD panel On.
- ✔ Phase 3: Turn the camera Off, then On, if more than 5 minutes have elapsed.

We recommend that you turn your camera Off if you will not using it for more than ten minutes. The camera will consume only minimal power when turned Off.

Configuring Your Camera

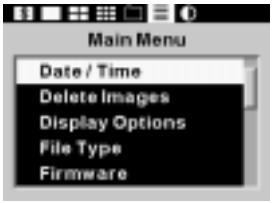
Your camera has a clock and you can set the date and time. You can also set several camera properties to meet your specifications.

Setting the Date and Time

The date and time is saved with each image. The format for the date is year/month/day and the format for time is hour:minute:second based on a twenty-four hour clock.

If you remove the batteries from the camera, a small, rechargeable backup battery will maintain date and time for up to five days. (It is recharged when the camera is powered by batteries or a Kodak-specified AC adapter.)

1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main Menu icon.
3. Release the MENU button.



The Main Menu appears.

4 Press and hold the SELECT button and rotate the Main-Command dial to highlight the Date / Time choice.

5 Release the SELECT button.

6 Press and hold the SELECT button and rotate the Main-Command dial to change the highlighted field.

7 Release the SELECT button to accept the change and highlight the next field.

To leave a field unchanged, press and release the SELECT button without using the Main-Command dial.

8 Repeat steps 6 and 7 until you have changed all necessary fields.

☞ When the seconds field is highlighted, the seconds will stop counting while you press and hold the SELECT button, allowing you to set that field.

9 Press and release the MENU button to return to the Main Menu.

Camera Properties

You can check the camera's total actuations since manufacture, and set the following camera properties: Histogram Scale Marks, Antialiasing Filter, Use Empty Folder, Use FOLDER01, Display Off Time, Display Off Using Adapter, PowerSave Time, and Noise Reduction.

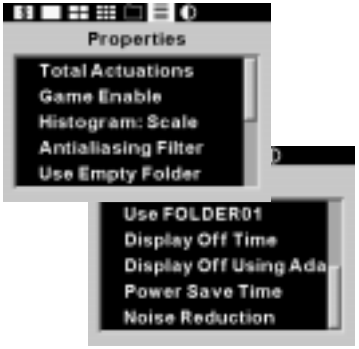
The list of properties may change as new versions of firmware become available. The wording on the screens may not be exactly as shown here.

Setting Camera Properties

1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main Menu icon.
3. Release the MENU button.

The Main Menu appears.

4. Press and hold the SELECT button and rotate the Main-Command dial to highlight Properties.



5 Release the SELECT button.

The Properties menu appears.

6 Press and hold the SELECT button and rotate the Main-Command dial to highlight your choice.

7 Release the SELECT button.

Determining Total Actuations

This property displays the number of images captured by your camera since manufacture.

With the Properties menu displayed, select Total Actuations.

The Total Actuations screen appears, displaying the number of images captured.

Specifying Whether the Antialiasing Filter is Installed or Removed

With the DCS 330 camera, you must set a camera property which will tell the Kodak Software whether the antialiasing filter was installed or removed when an image was captured. This information can determine whether the Kodak Software applies the Sharpening feature, and the information is also used if the camera performs background image processing to create a JPEG file. (This property is not available with the DCS 315 camera.)

The default setting is Installed. If you remove the antialiasing filter, you will need to set the property to Removed. Refer to “Removing, Cleaning, and Re-installing the Antialiasing Filter” on page 11-3.

1 With the Properties menu displayed, select Antialiasing Filter.

The Antialiasing Filter screen appears.

2 Choose either Installed or Removed depending on whether your antialiasing filter is currently installed.

For information on the Sharpening function, refer to the KODAK PROFESSIONAL DCS Host Software User’s manual on the DCS Host Software CD included with your camera.

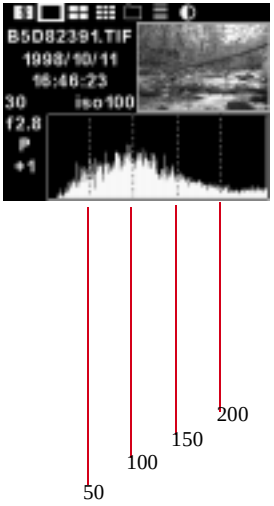
Setting the Histogram Scale Marks

The Histogram shows the range and distribution of tonal values for an image, and can be used to assess an image's brightness and contrast levels. Refer to "Viewing Overexposure Areas and Histogram Information" on page 9-5. You can specify that scale marks be displayed on the histogram in the Histogram/Info screen. The scale marks can serve as a point of reference when you use the histogram to evaluate the brightness and contrast levels of an image. The histogram's range of code values (the horizontal axis) is from 0-255. The scale marks represent pixel code values of 50, 100, 150, and 200.

1 With the Properties menu displayed, select Histogram:Scale.

The Histogram:Scale screen appears.

2 Press and hold the SELECT button and use the Main-Command dial to highlight Scale Marks Off or On.



If you choose Scale Marks On, scale marks appear on the Histogram/Info screen.

Save Images in an Empty Folder

You can specify that an empty folder is selected when you turn your camera On. Images that you capture will then be stored in an empty folder.

☛ If there is more than one empty folder, images will be stored in the first empty folder found on the PC Card.

1. With the Properties menu displayed, select Use Empty Folder.

   The Use Empty Folder screen appears.

2. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.

   If you select Yes, the first available empty folder will be selected when you turn the camera On.

   If you select No, the last folder used will be selected when you turn the camera On.

Save Images in Folder 1

You can specify that FOLDER01 is selected when you insert a new PC Card.

1. With the Properties menu displayed, select Use Folder01.

   The Use FOLDER01 screen appears.

2. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.

   If you select Yes, FOLDER01 will be selected when you insert a new PC Card.

   If you select No, the camera will use the same folder it was using on the previous card. (If there is no folder with the same name, the camera will use the first empty folder found or make a new empty folder.)

Setting the Display Off Time

You can change the Display Off Time (the length of time before the Image LCD panel turns Off).

☞ Keep in mind that extended use of the Image LCD panel will drain your batteries.

The Display Off Time screen and the PowerSave screen operate a little differently than the others. Note that you use the horizontal arrows to select a number and the vertical arrows to change the value of a selected number.

1 With the Properties menu displayed, select Display Off Time.

The Display Off Time screen appears.

2 Press and hold the MENU button.

A vertical arrow appears.

3 Continue to press the MENU button and rotate the Main-Command dial to change the highlighted number.

4 Release the MENU button.

The vertical arrow goes away and the changed number appears.

5 To highlight a different number, press and hold the MENU button.

A horizontal arrow appears.

6 Continue to hold the MENU button and rotate the Main-Command dial to highlight a different number (tens, hundreds, etc.).

7 Release the MENU button.

The horizontal arrow goes away.

8 Continue changing the values and highlighting different numbers by repeating steps 2 through 7. The MENU button toggles between the vertical arrow which changes a number's value and the horizontal arrow which selects a different number.

9 Press and hold the SELECT button and rotate the Main-Command dial to select OK to accept the changes, or Cancel to retain the original setting.

Specifying Display Off When Using Adapter

By default, the Image LCD panel turns Off even when the camera is powered by an AC adapter.

1. With the Properties menu displayed, select Display Off Using Adapter.

   The Display Off Using Adapter screen appears.

2. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.

   If you choose No, the Image LCD panel will not turn Off at the Display Off time (page 3-6) when an AC adapter is connected.

Setting The PowerSave Time

You can change the PowerSave time by choosing PowerSave Time from the Properties menu, then using the same procedure described for changing Display Off time to alter the PowerSave time. Refer to “PowerSave Mode” on page 2-10.

Specifying Noise Reduction

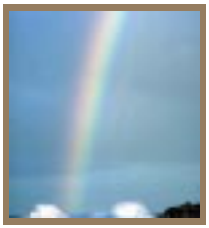
You can specify whether noise reduction is applied to JPEG images when they are processed (page 4-11).

1. With the Properties menu displayed, select Noise Reduction.

   The Noise Reduction screen appears.

2. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.

   If you choose Yes, noise reduction will be applied to JPEG images if they are processed.

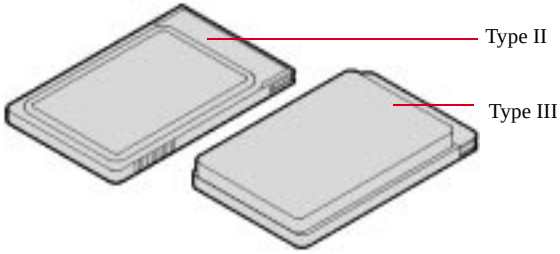


Using a PC Card

As you capture images, they are stored on a PC Card (PCMCIA card) in your camera. Before capturing images, you will want to ensure that the images are stored as needed. This chapter describes the use of the PC Card and provides instructions for processing (compressing) and storing images.

PC Cards

Your camera is designed to accept Type II or Type III ATA-compatible PC Cards.



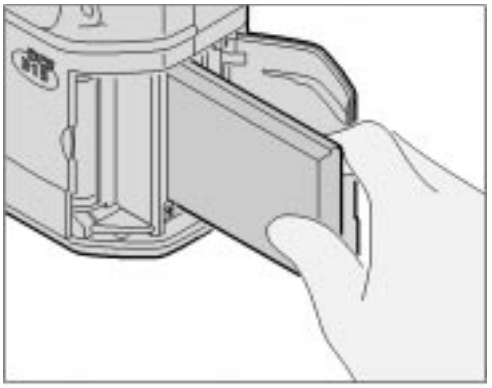
CAUTION: ⚠

- ✔ Use extreme care when handling PC Cards as they are easily damaged. If dropped, a PC Card may be destroyed, resulting in the loss of data.
- ✔ Do not remove a PC Card from the camera while the PC Card Busy/Record LED is blinking. This indicates that data is being read from or written to the PC Card or that sound is being recorded. You will lose data if you remove a card at this time. Refer to “PC Card Busy/Record LED” on page 1-12.

Inserting a PC Card

There are two slots for PC Cards on your camera, however only the rear slot is currently available for use. The front slot is reserved for future applications. Meanwhile, you can use the front slot to store an extra PC Card.

It is not necessary to turn the camera Off before inserting a PC Card.



1 Open the Battery/PC Card door.

2 Insert a PC Card. (Slide it in until you feel it seat.)

IMPORTANT:

Do not force the PC Card into the slot. It will only fit in one orientation.

3 Close the Battery/PC Card door.

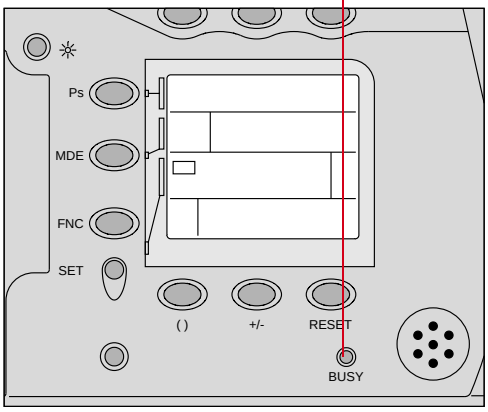
If the PC Card has been inserted correctly, the PC Card icon appears on the Status screen. Refer to “Viewing Status Information” on page 9-8.

Removing a PC Card

It is not necessary to turn the camera Off before removing a PC Card.

IMPORTANT:

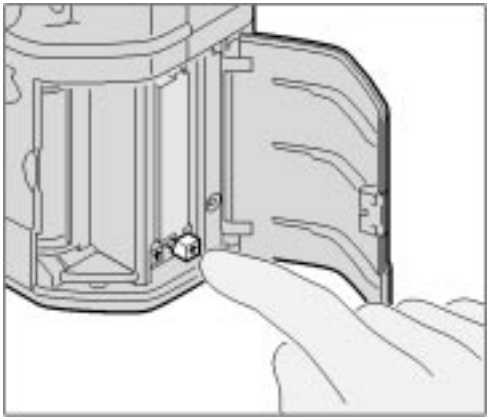
Do not remove a PC Card from the camera if the PC Card is busy (data is being read from or written to the PC Card). You may lose data if you remove a PC Card at this time.



1 Check the PC Card Busy/Record LED.

The LED blinks when the PC Card is busy.

2 If the PC Card is busy, wait until the LED stops blinking before continuing.



3 Open the Battery/PC Card door.

4 Press the Eject button.

5 Gently pull the PC Card out of the card slot.

Formatting a PC Card

A PC Card may not be properly formatted for your camera. The data on a PC Card may also become corrupted. In either case, an error message appears on the Image LCD panel indicating that you need to format the card.

There are three ways to format a PC Card:

- ✔ Using your camera—described below
- ✔ Using Kodak Software—refer to the Kodak Professional DCS Host Software User's manual (on the DCS Host Software CD included with your camera).
- ✔ Using your PC (not recommended on Macintosh)—refer to your computer documentation

All three methods produce a DOS FAT16 formatted card.

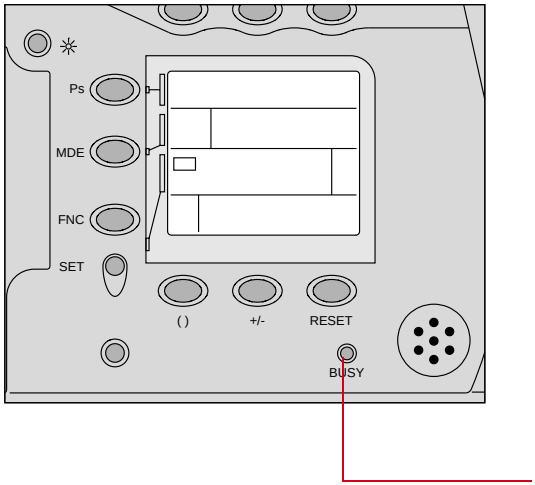
IMPORTANT:

Once you reformat a PC Card, images and data that were previously stored on the PC Card are no longer accessible.

To Format a PC Card

1. Insert the PC Card in the card slot in your camera.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main Menu icon.
3. Release the MENU button.

   The Main Menu appears.
4. Press and hold the SELECT button and rotate the Main-Command dial to highlight the Format Card option.
5. Release the SELECT button.



A confirmation screen appears.

6 Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.

7 Release the SELECT button.

If you respond Yes, a second confirmation screen appears.

8 Repeat steps 6 and 7.

If you respond Yes, a Formatting Card screen appears briefly. It is replaced by another Formatting Card screen, but the new screen has a Cancel button. When this screen appears, the card has been formatted (quick format) and you can cancel at any time.

If you let the formatting process run to completion (up to 15 minutes), a thorough format with media verification occurs. A progress bar indicates the formatting status. Pressing the Cancel button terminates the thorough format, although the PC Card will have been formatted using quick format.

Whether or not you cancel, a Format Complete screen will appear.

The PC Card Busy/Record LED stops blinking when formatting has stopped.

Managing Image Files

To effectively manage image files on a PC Card, you will need to do the following:

- ✔ Select a folder to store images (see below)
- ✔ Specify the type of file (page 4-8)
- ✔ Set processing options (page 4-11)

Selecting Folders

Images are stored in folders on a PC Card. There is always at least one empty folder unless the card is full. When you capture an image to the last empty folder, a new one is created. The new folder is called FOLDERxx, (xx being the next sequential number available).

To organize your work, we recommend that you use new folders to separate images of different subject matter. Regardless of the file type at the time of capture (page 4-8), all images are stored as TIFF. If background image processing (page 4-11) is later activated, images captured while a JPEG file type was selected will be processed into JPEG Best, Better, or Good and placed in the JPEG folder. If there was no JPEG folder, it will be created. While you will not be prevented from selecting the JPEG folder for captured images, we recommend that you choose an alternate folder such as FOLDER01 to keep the original and the finished images separate.

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1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Folder icon.
3. Release the MENU button.

   The Select Folder menu appears. A dot (•) appears next to the currently selected folder. The numbers in parentheses indicate the number of images in each folder.
4. Press and hold the SELECT button and rotate the Main-Command dial to highlight the desired folder.

5 Release the SELECT button.

As you capture images, they will be stored in the selected folder.

You cannot rename folders using your camera but you can rename them on your computer using the Kodak Software. (Refer to the KODAK PROFESSIONAL Host Software User's Manual on the DCS Host Software CD included with your camera.) You can also rename folders using standard Windows or Macintosh protocols.

Longer folder names will not display fully. Do not use spaces or punctuation in the names.

Selecting the File Type

You can specify that captured images are saved as TIFF files or as compressed JPEG files (after processing). Images with less compression are of better quality, but require more storage space.

If you want images to be processed on the camera, you will need to select one of the JPEG file types before image capture. The default file type is TIFF. If you capture images with the TIFF file type, you will not be able to process them on the camera. You can process them later using the Kodak Software. (Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.)

If you select a different file type, the new setting will be retained until you change it again.

The actual JPEG file size varies according to image content.

Four file types are available on the DCS 300 Series cameras:

TIFF Custom - No compression
JPEG Large - Least compression
JPEG Medium - Medium compression
JPEG Small - Most compression

The following table shows the approximate file sizes for the available file types:

Camera	TIFF Custom	JPEG Large	JPEG Medium	JPEG Small
DCS 315	1.7 MB	620 KB	350 KB	200 KB
DCS 330	3 MB			

All images are written to the PC Card in the TIFF Custom format, regardless of whether they are to be processed to JPEG. When you turn processing On (page 4-11), you can specify whether the original TIFF image will be saved or deleted.

☛ The TIFF Custom file format is proprietary to Kodak. Before you use TIFF Custom images, you will first need to acquire (import) them through a program such as Photoshop, using the Kodak Software (on the DCS Host Software CD). If you try to open these files in Photoshop without first acquiring them, only the thumbnail version will be available.

1. Press the Menu button to turn the Image LCD panel On.
2. Press and hold the Menu button and rotate the Main-Command dial to highlight the Main menu icon.
3. Release the Menu button.

   The Main menu appears.
4. Press and hold the Select button and rotate the Main-Command dial to highlight File Type.
5. Release the Select button.

   The File Type menu appears. A dot icon (•) appears next to the currently selected file type.
6. Press and hold the Select button and rotate the Main-Command dial to highlight your choice.
7. Release the Select button.

   Images that you capture will be stored in the selected file type.

The currently selected file type is represented by the File Type icon on the Status screen.

The file type of the currently selected image (page 9-2) is represented at the bottom of the screen.

The appearance of the File type of Current Image icon will vary, depending on the current file type setting.

File type of Current Image	Before Processing	After Processing
TIFF Custom	TIF	TIF
JPEG Large	TIF	
JPEG Medium	TIF	
JPEG Small	TIF	

Setting Processing Options

Your DCS 315 camera features in-camera background image processing. The processing applies compression, white balance, exposure correction, and (optionally) noise reduction to TIFF images. The resultant JPEG images are placed in the JPEG folder on the PC Card.

☛ Only those TIFF images that were saved when a JPEG file type was selected will be processed to JPEG.

You can specify whether the original TIFF image is saved when the JPEG file is created.

You can also specify whether noise reduction is applied during image processing. To do so, you will need to appropriately set the Noise Reduction property prior to enabling background image processing. Refer to “Specifying Noise Reduction” on page 3-12.

If background image processing is enabled, the images are placed in a queue and are processed sequentially in the camera. Processing takes place in the background (when the camera is not busy with other activities such as writing to the PC Card or processing user input).

You can also process images using the Kodak Software. Refer to the KODAK PROFESSIONAL DCS Host Software User’s Manual on the DCS Host Software CD included with your camera.r

IMPORTANT:

Background image processing requires a great deal of power. Battery life will be shortened. Consider using an AC adapter when you need to process a group of images.

1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main Menu icon.
3. Release the MENU button.

   The Main Menu appears.
4. Press and hold the SELECT button and rotate the Main-Command dial to highlight Processing.
5. Release the SELECT button.

   The Background Image Processing screen appears.
6. Press and hold the SELECT button and rotate the Main-Command dial to highlight your choice.

One of the following actions will occur, depending on your choice in the Background Image Processing screen:

Off:

If processing was Off, the Main Menu appears.

If processing was On, the screen at the left appears.

Choose Yes to stop processing, and No to continue.

On: SAVE original TIF:

If processing was On and the original TIFF was being saved, the Main Menu appears.

If processing was On and the original TIFF was being deleted, or if processing was Off, the screen at the left appears (showing Noise Reduction ON or OFF).

Choose OK to continue. If you cancel, you can change the Noise Reduction setting in Properties (page 3-12), if necessary, then repeat this procedure.

On: DELETE original TIF:

If processing was On and the original TIFF was being deleted, the Main Menu appears.

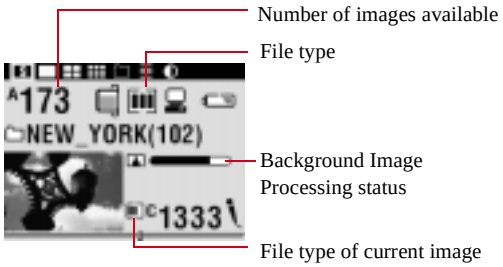
If processing was On and the original TIFF was being saved, or if processing was Off, the screen at the left appears (showing Noise Reduction ON or OFF).

Choose OK to continue. If you cancel, you can change the Noise Reduction setting in Properties (page 3-12), if necessary, then repeat this procedure.

The following circumstances cause processing to stop, requiring you to repeat the previous procedure if you want to start processing again:

- ✔ PC Card becomes full.
- ✔ PC Card is removed from the camera.
- ✔ PC Card is formatted
- ✔ The camera is turned Off.

You can evaluate the current file type setting, the number of images that can still be saved at that setting, the background image processing status, and the file type of the current image by viewing the Status screen in the Image LCD panel. Refer to “Viewing Status Information” on page 9-8.



The Background Image Processing status indicator will only be displayed if processing is On and currently occurring.

The following table illustrates the differences in the way images are handled in the camera (with background image processing turned On) and in the Kodak Software on the computer:

	In Camera	In Kodak Software
JPEG Files	1 Image captured 2 Image saved as TIFF 3 Image opened for processing 4 Image processed 5 JPEG compressed 6 JPEG File saved 7 The TIFF file may or may not be deleted, depending on your choice in the Bacgground Image Processing screen.	JPEG decompressed
TIFF Files	1 Image captured 2 File saved	Image processed ☞ If you specify a JPEG format in the Kodak Software's Copy To option, TIFF files are converted to the specified JPEG format.

Basic Operation

Preparing to Capture an Image

Before capturing images, make sure your camera is ready.

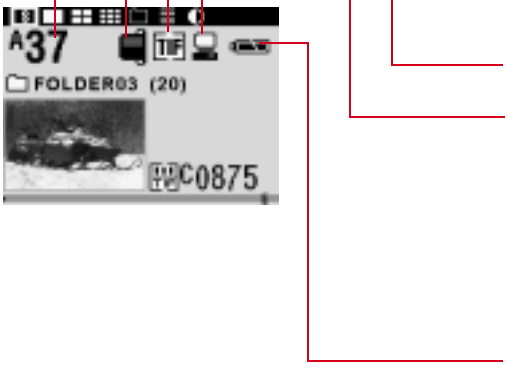
- ✔ Batteries are inserted (page 2-4) or the Kodak-specified AC adapter is connected (page 2-9)
- ✔ A formatted (page 4-4) PC Card is inserted (page 4-2)
- ✔ The camera is On (page 2-2)

Then do as follows:

1. Press and release the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Status display icon.
3. Release the MENU button.

   The Status screen appears.

☞ If the Image LCD panel is showing the Status screen, you can quickly press and release the SELECT button to toggle between the Status screen and the single image. Refer to “Selecting a Review Mode” on page 9-2.



4 Check the Status screen to verify that your camera is set to capture images:

- ✔ Images available (greater than 0)
- ✔ PC Card status (inserted and not busy)

  The icon appears when the card is inserted and blinks when the card is busy.
- ✔ File type (your preference)
- ✔ Host computer connection status (if applicable)

  The icon appears when the computer is connected and blinks when an application such as the Kodak Software is running.
- ✔ Battery level (fully charged) or AC adapter connected

5 Select the folder to hold images that you capture. Refer to “Selecting Folders” on page 4-6.

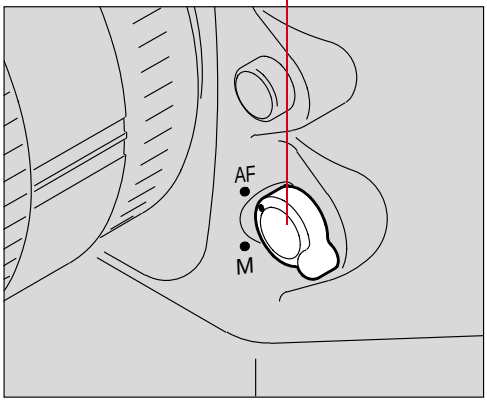
Hold the camera properly. Stand with one foot forward a half step to balance your body. Grasp the camera handgrip with your right hand. Use your left hand to cradle the camera/lens with your elbow propped against your body for support, as you look through the viewfinder. Use your right index finger to press the Shutter Release button.

Check that nothing gets between your camera and the desired scene:

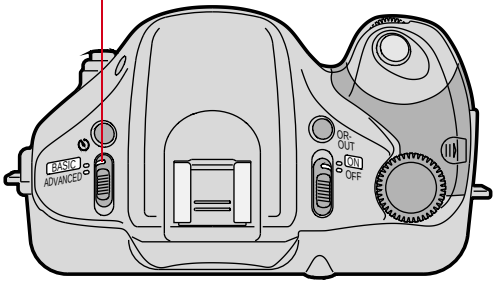
- ✔ Do not block the lens with your hair, hand, or camera strap.
- ✔ When capturing an image without looking through the viewfinder, make sure nothing (such as your camera strap) is between your camera and the subject.
- ✔ Do not block the flash during flash photography.

Capturing Images in BASIC Mode

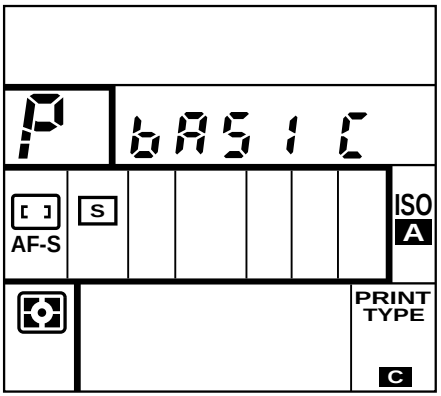
While BASIC mode is available on your camera, ADVANCED mode is recommended for the best results.



1 Set the Focus Mode selector to AF.



2 Slide the BASIC/ADVANCED switch to BASIC.



BAS IC appears in the Camera Status LCD panel.

Function	Setting
Exposure mode:	Auto-Multi Program (***P***)[1]
Metering system:	DCS 315: Center-Weighted ( ) DCS 330: 3D Matrix ( )
Focus area:	Wide ( )
AF mode:	Single Servo AF (**AF-S**)
Drive mode:	Single-Frame ( )
Flash Sync mode:	Normal[2]
ISO	Auto ( ) - ISO 200

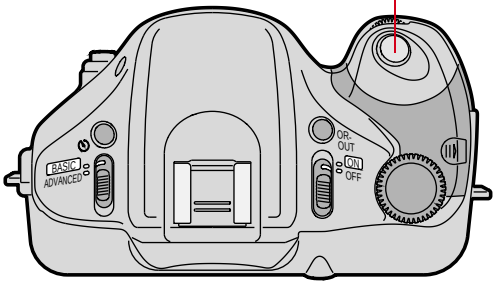
In BASIC mode, the Exposure mode, Metering system, focus area, AF area, Drive mode, Flash Sync mode, and ISO are automatically set as shown at the left:

1 Can be switched to Vari-Program.

2 With the attached built-in flash or Nikon Speedlight turned On, ϟ appears for normal sync. If an attached Nikon Speedlight is set at Rear-Curtain Sync, Rear-Curtain Sync will be performed.

3 Look through the viewfinder and position the focus brackets on the main subject.

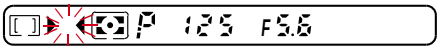
In BASIC mode, Single Servo AF is automatically selected. After focusing is achieved and the in-focus indicator (●) appears, focus remains locked as long as you lightly press the Shutter Release button. If the distance between you and the subject changes, remove your finger from the Shutter Release button, then lightly press it again to refocus. Refer to “AF-S Single Servo AF” on page 6-30.

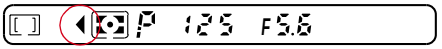


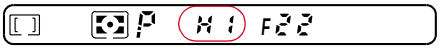
4 Lightly press the Shutter Release button to start the autofocus operation and to switch the exposure meter On.

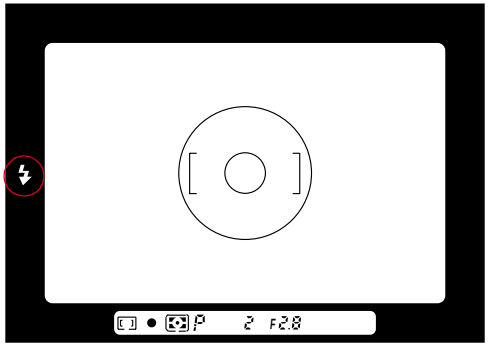
Confirm that the in-focus indicator (●), shutter speed and aperture indications appear in the viewfinder LCD.

5 For Flexible Program, which lets you change the shutter speed/aperture combination, refer to the “Operating in Flexible Program” section on page 6-17.









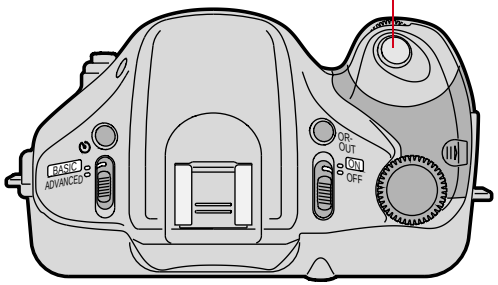
If ▶ ◀ blinks—AF impossible alert: Autofocus is not possible and the shutter locks. Refer to “Special Focusing Situations” on page 7-18.

If ◀ remains on—Too-near-subject alert: If the subject is located closer than the lens’ closest focusing distance, the shutter locks. Move further from the subject and refocus.

If **HI** appears in the shutter speed position—Over-exposure alert: Use a Nikon ND or similar filter.

If **Lo** appears in the shutter speed position—Under-exposure alert: Use the built-in flash/a Nikon Speedlight, a higher ISO (if you are using Advanced mode), or a lens with a wider minimum aperture.

If a green ϟ mark appears—Flash photography recommended: Available light is insufficient. Use the built-in flash or a Nikon Speedlight.



6 Fully depress the Shutter Release button to capture the image.

☛ Apply light but steady pressure with the ball of your index finger to avoid camera shake that might result in a blurred image.

If one of the following error messages appears on the Image LCD panel, take the appropriate action before proceeding:

Message	Action
"Unable to take pictures. No card present."	Insert a PC Card (page 4-2).
"Unable to take pictures. Card full."	Insert a different PC Card (page 4-2).
"Unable to take pictures. Camera too hot."	Wait a few minutes then try again.
"Unable to take pictures. Batteries low. Batteries may recover with time."	Insert new batteries (page 2-4) or wait a few minutes and the batteries may recover so that you can capture more images.

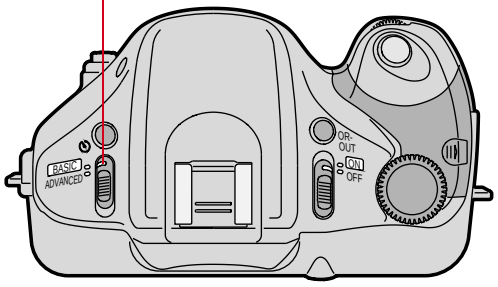
☛ On rare occasions, there may be a slight pause before an image is captured. This can occur if your camera is in a critical processing state and must finish several tasks before capture.

General Functions

This chapter describes the various modes of camera operation.

Advanced Mode and Basic Mode

In BASIC mode, available functions and choices are limited. In ADVANCED mode, you can take advantage of the full range of Pronea 6i features. In general, you will get better results using ADVANCED mode.



Switch between BASIC and ADVANCED mode using the BASIC/ADVANCED switch.

The following table lists the functions available in each mode.

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Functions/ modes	In BASIC mode	In ADVANCED mode	Refer to
Vari-Program	Six options are selectable		Page 6-3
Exposure mode* (excluding Vari-Program)	Fixed at Auto-Multi Program	Auto-Multi Program, Shutter-Priority Auto, Aperture-Priority Auto and Manual are selectable	Page 6-10
Metering system*	DCS 315: Fixed at Center-Weighted DCS 330: Fixed at Matrix	DCS 315: Center-Weighted and Spot are selectable DCS 330: 3D Matrix, Center-Weighted and Spot are selectable	Page 6-27
Focus area/AF mode*	Fixed at Wide with Single Servo AF	Wide with Single Servo AF, Wide with Continuous Servo AF, Spot with Single Servo AF, and Spot with Continuous Servo AF are selectable	Page 6-30
Drive mode*	Fixed at Single-Frame	Single-Frame and Continuous are selectable	Page 6-39
Flash Sync mode*	Fixed at Normal Sync	Normal Sync, Red-Eye Reduction, Red-Eye Reduction with Slow-Sync, Slow Sync and Rear-Curtain Sync are selectable	Page 8-4
ISO**	Fixed at ISO 200	Manual available	Page 7-15
Flexible Program	Available		Page 6-17
AE lock button	Available		Page 7-4
Self-timer	Available		Page 7-1
Built-in flash	Available		Page 8-9
Two-Button Reset	Not available	Available	Page 6-41
Exposure Compensation*	Not available	Available	Page 7-3
Flash Output Level Compensation*	Not available	Available	Page 8-20
Auto Exposure Bracketing	Not available	Available	Page 7-9
Flash Exposure Bracketing	Not available	Available	Page 8-16
QR (Quick Recall)	Not available	Available	Page 7-12

* Setting BASIC mode, then returning to ADVANCED mode reactivates the previously set mode/functions.

** The ISO A icon means ISO 200.

☞ Camera settings are saved when you capture an image or the camera enters PowerSave mode.

Vari-Program

Programmed auto exposure control automatically adjusts both lens aperture and shutter speed for the correct exposure. Your camera's Metering system determines the correct exposure, applying appropriate exposure compensations. However, factors such as different shutter speeds and apertures can affect the image.

Auto-Multi Program is designed to coordinate the selection of shutter speed and aperture for average situations. It guides the exposure control system into using reasonably high shutter speeds to avoid blur due to camera shake.

Your camera incorporates a versatile Vari-Program System that lets you choose from six different programs, each designed to accommodate different picture-taking situations. Vari-Program automatically handles all exposure control tasks while you concentrate on composition. Once you understand how each program operates, you'll be able to experiment, using each program for applications different from its originally intended use.

The effect achieved by using each Vari-Program can be reproduced using ADVANCED mode functions such as Shutter-Priority Auto, Aperture-Priority Auto and Manual.

Your camera's Vari-Program control offers six programs. The following symbols appear in the Camera Status LCD panel:

- ✔ Portrait Program
- ✔ Hyperfocal Program
- ✔ Landscape Program
- ✔ Close-Up Program
- ✔ Sport Program
- ✔ Silhouette Program

Portrait Program

Used to capture images of people, this program creates an artistically out-of-focus background that accentuates your main subject.

To reduce the possibility of red-eye when using flash, set the Flash Sync mode to Red-Eye Reduction or Red-Eye Reduction with Slow-Sync. Refer to "Red-Eye Reduction" on page 8-4 or "Red-Eye Reduction with Slow Sync" on page 8-5.

Recommended AF Nikkor lenses: To obtain pronounced blurred background effect, use middle-range telephoto lenses.

Hyperfocal Program

Used when photographing landscapes and other subjects that encompass great depth. The effect becomes more pronounced if there is an interesting foreground in the scene. This program tends to select a slow shutter speed and smaller aperture to ensure that both subject and background are in focus. To avoid camera shake, use a tripod.

Recommended AF Nikkor lenses: Normal or wider angle lenses.

Landscape Program

Used when capturing a distant scene. Do not use the built-in flash, as it will be ineffective. This program tends to select a slower shutter speed and smaller aperture to provide sharply focused landscape pictures. To avoid camera shake, use a tripod.

Recommended AF Nikkor lenses: Select the lens according to your desired effect. For an expansive view, use a wide angle lens; to emphasize your subject by magnifying it, use a telephoto lens.

Close-Up Program

Used when capturing images up close—a flower, ornamental detail, a butterfly, etc. Do not use flash. To avoid camera shake, use a tripod.

Recommended AF Nikkor lenses: AF Micro-Nikkor lenses.

Sport Program

Used to freeze the action. Recommended for use with Continuous Servo AF (page 6-38). Do not use a flash, as it restricts the available shutter speeds.

Recommended AF Nikkor lenses: For a more pronounced out-of-focus background effect, use a telephoto lenses.

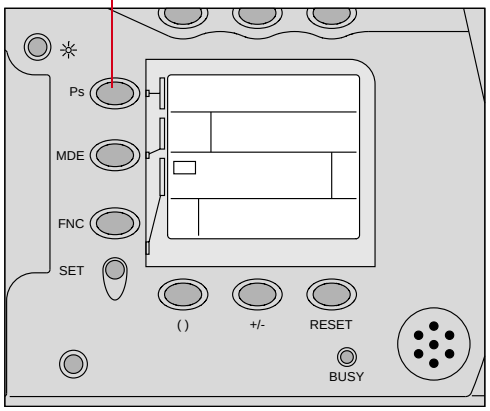
Silhouette Program

Effective only when the background is bright and the subject is in a shadow or is comparatively dark. The result is dramatic with a wide angle lens, although a telephoto can also be used. Excellent for sunsets with a dark foreground silhouette or pictures of people against the sky. Do not use flash.

This program tends to select a slow shutter speed to produce effectively silhouetted pictures. To avoid camera shake, use a tripod.

Recommended AF Nikkor lenses: Choose the lens according to your desired effect.

Setting Vari-Program



Press and hold the Ps button and rotate the Main-Command dial until the desired Vari-Program symbol (page 6-4) appears in the Camera Status LCD panel.

When Vari-Program is selected, ***Ps*** appears as the Exposure indication in the Camera Status LCD panel.

When Vari-Program is set, camera settings are automatically reset as follows:

Metering system	DCS 315: Center-Weighted DCS 330: 3D Matrix
Focus area	Wide [ ], or Spot [o] with flash
Flexible Program	Cancel*
Sync mode	Normal Sync **
Exposure Compensation function	Cancel *

* Settings can be changed as desired in ADVANCED mode.

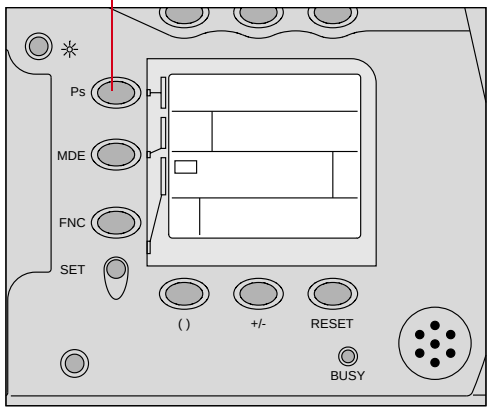
** In ADVANCED mode, you can change Flash Sync mode to Red-Eye Reduction, Red-Eye Reduction with Slow Sync, or Slow Sync. (You cannot set Rear-Curtain Sync with Vari-Program.)

To cancel Vari-Program

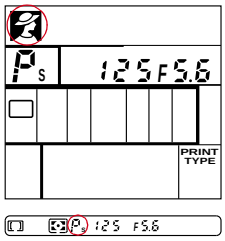
Set the Vari-Program indication to the blank area between the  and the  to cancel Vari-Program and activate Auto-Multi Program. (The Vari-Program option indication disappears and ***P*** takes the place of ***Ps*** in the Camera Status LCD panel.)

In ADVANCED mode, you can cancel Vari-Program by holding the MDE button and rotating the Main-Command dial until the desired Exposure mode symbol. (***P***, ***S***, ***A*** or ***M***) replaces ***Ps***.

Operating in Vari-Program



1 Press and hold the **Ps** button and rotate the Main-Command dial until the desired Vari-Program symbol appears.

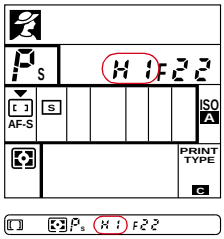


In the example shown, Portrait Program in ADVANCED mode is selected.

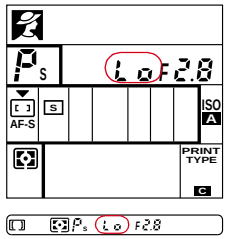
2 Look inside the viewfinder, compose the shot, lightly press the Shutter Release button, then confirm focus.

☛ For Flexible Program, which lets you change the shutter speed/aperture combination refer to the “Operating in Flexible Program” section on page 6-17.

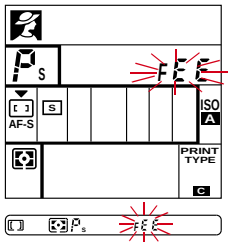
3 Fully depress the Shutter Release button to capture the image.



If **HI** appears in the shutter speed position—Over-exposure alert: Use a Nikon ND or similar filter.

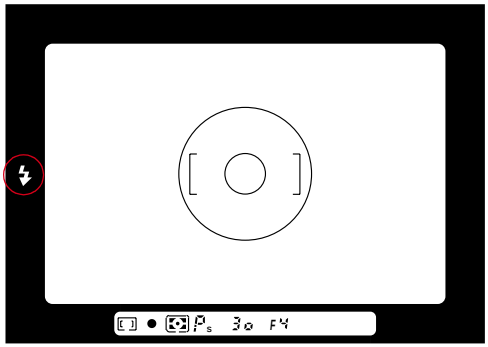


If **Lo** appears in the shutter speed position—Under-exposure alert: Use the built-in flash/a Nikon Speedlight, a higher ISO setting, or a lens with a wider maximum aperture.



IMPORTANT:

If **FEE** *blinks in the aperture position—Lens setting error alert: The lens (other than the IX-Nikkor lens) is not set to its minimum aperture setting, causing the shutter to lock. Set the lens to its minimum aperture.*



If a green ⚡ mark appears—Flash photography is recommended. If the available light is insufficient, the green ⚡ mark appears. Use built-in flash or a Nikon Speedlight.

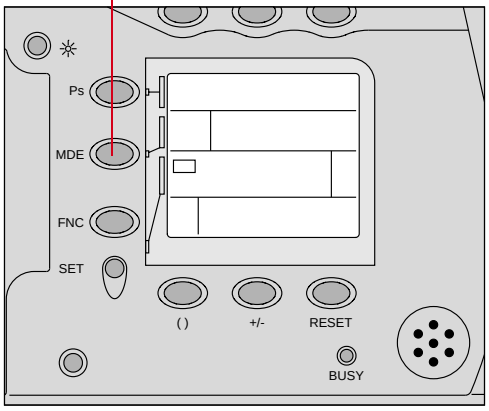
Exposure Mode

Light reaching the imager is controlled by shutter speed and lens aperture. The proper combination results in a correct exposure. Shutter speed and lens aperture settings are based on the ISO setting and the operation of the camera's exposure control system.

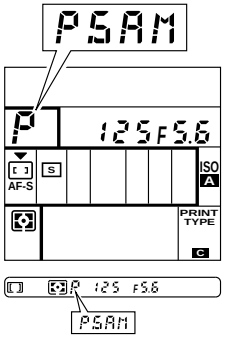
The relationship between aperture and shutter speed is as follows: one change in either the shutter speed or the aperture either doubles or halves the amount of light transmitted. For example, a shutter speed of 1/500 second passes half the light of 1/250 second and double the light of 1/1000 second. An aperture of f/8 passes half the light of f/5.6 and double the light of f/11. If the correct exposure for a scene is 1/500 at f/8, we can also select 1/250 at f/11 or 1/1000 at f/5.6 and achieve the same exposure results.

Your camera offers two types of Programmed Auto Exposure modes, Auto-Multi Program (***P***) and Vari-Program (***Ps***). It also offers Shutter-Priority Auto (***S***), Aperture-Priority Auto (***A***), and Manual (***M***) Exposure modes. The Exposure mode enables you to determine whether you want the shutter speed and lens aperture set automatically or manually.

Setting the Exposure Mode



Press and hold the MDE button, and rotate the Main-Command dial to set ***P*** for Auto-Multi Program, ***S*** for Shutter-Priority Auto. ***A*** for Aperture-Priority Auto, or ***M*** for Manual.



☞ Use the Ps button to activate Vari-Program. Refer to “Vari-Program” on page 6-3.

Auto-Multi Program (P)

Use Auto-Multi Program for most common picture-taking situations.

With your camera choosing the combination of shutter speed and aperture automatically, you can concentrate on image composition, without worrying about exposure.

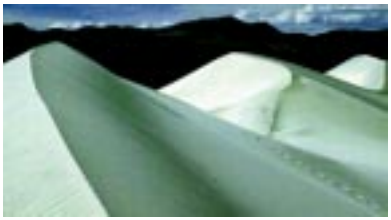
In Programmed Auto Exposure mode, you can use the Flexible Program function to temporarily shift an automatically selected shutter speed/aperture combination and obtain the desired shutter speed/aperture. Refer to “Operating in Flexible Program” on page 6-17.

Shutter-Priority Auto Exposure Mode (S)

Using this mode you can manually set your desired shutter speed (30 seconds to 1/4000 second). To freeze the action, use a faster shutter speed; to create motion effects, choose a slower shutter speed. Your camera automatically sets the proper aperture to match the manually selected shutter speed for correct exposure. Refer to “Operating in Shutter-Priority Auto Exposure Mode” on page 6-18.

☛ For the best results, do not use a shutter speed longer than 1/4 second.

Aperture-Priority Auto Exposure Mode (A)



Using this mode you can control the depth of field by varying the aperture. Smaller apertures bring both the background and foreground into focus (recommended for landscape pictures). Larger apertures tend to send the background out of focus (recommended for portraits). The aperture that you select automatically determines the shutter speed. Refer to “Operating in Aperture-Priority Auto Exposure Mode” on page 6-21.

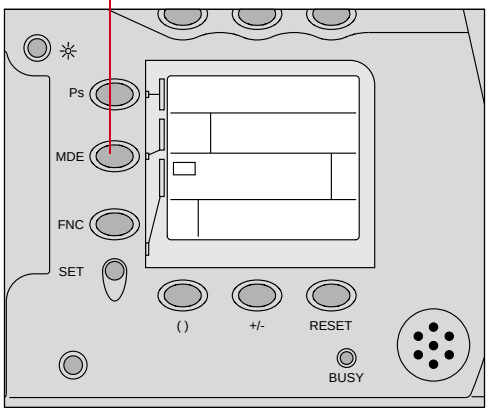
IMPORTANT:

If **FEE** *blinks in the aperture position of the Camera Status LCD panel—Lens setting error alert: The lens (other than the IX-Nikkor lens) is not set to its minimum aperture setting, causing the shutter to lock. Set the lens to its minimum aperture.*

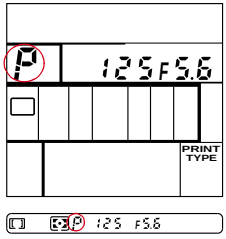
Manual Exposure Mode (M)

Using this mode you can adjust both aperture and shutter speed settings independently of each other. For a correct exposure, follow the recommendation of the camera's light meter as indicated in the viewfinder LCD. To achieve a specific creative effect such as intentional blur, intentional under- or over-exposure, disregard the LCD and modify the recommended exposure settings. Refer to "Operating in Manual Exposure Mode" on page 6-24.

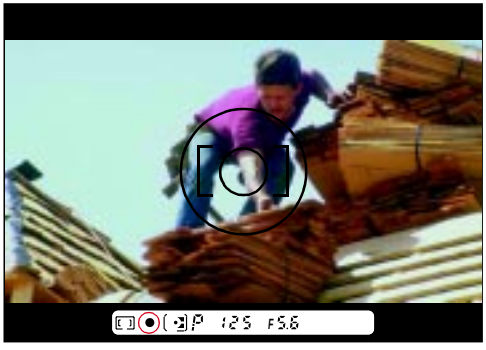
Operating in Auto-Multi Program



1 Press and hold the MDE button and rotate the Main-Command dial until ***P*** appears in the Camera Status LCD panel and viewfinder.



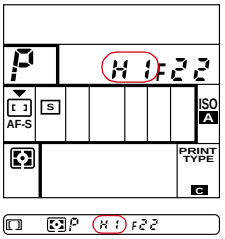
If the exposure meter and LCD indications automatically turn Off, turn them On again by lightly pressing the Shutter Release button.



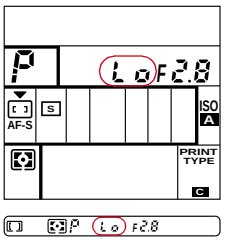
2 Look inside the viewfinder, compose your shot, lightly press the Shutter Release button, then confirm focus and automatically set the shutter speed/aperture value.

To change the shutter speed/aperture combination, refer to the “Operating in Flexible Program” section on page 6-17.

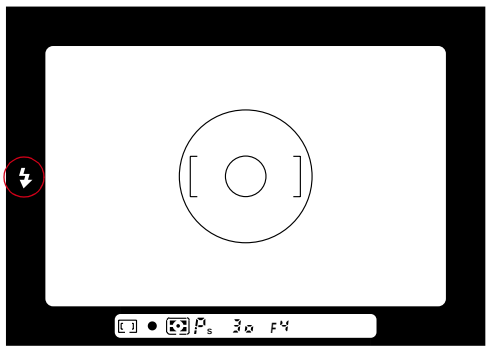
3 Fully depress the Shutter Release button to capture an image.



☛ If **HI** appears in the shutter speed position—Over-exposure alert: Use a Nikon ND or similar filter.



☛ If **Lo** appears in the shutter speed position—Under-exposure alert: Use built-in flash or a Nikon Speedlight.



☛ If a green ⚡ mark appears in the viewfinder—Use the built-in flash or a Nikon Speedlight.

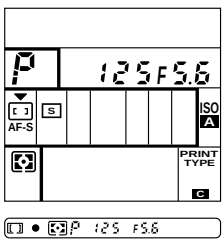
IMPORTANT:

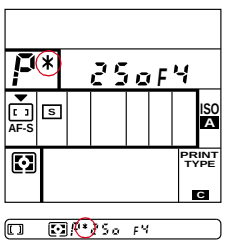
If **FEE** *blinks in the aperture position of the Camera Status LCD panel—Lens setting error alert: The lens (other than the IX-Nikkor lens) is not set to its minimum aperture setting, causing the shutter to lock. Set the lens to its minimum aperture.*

Operating in Flexible Program

To change the shutter speed/aperture combination in Auto-Multi Program or Vari-Program, use the Flexible Program function. Flexible Program lets you temporarily shift an automatically set combination of shutter speed/aperture in 1/2 EV steps, while maintaining the correct exposure.

In the following procedure, ADVANCED mode indications are used for illustrations.





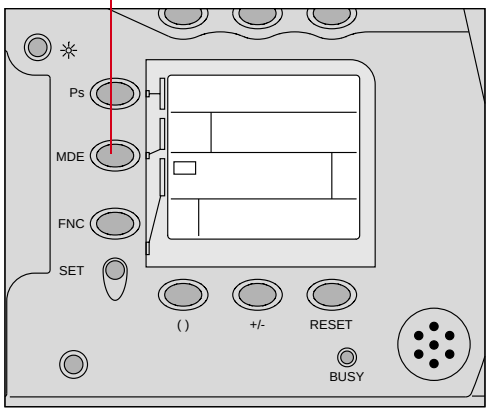
1. Select Auto-Multi Program (page 6-12) or Vari-Program (page 6-3).
2. Lightly press the Shutter Release button.
3. Rotate the Main-Command dial or Sub-Command dial until the desired shutter speed/aperture combination appears.

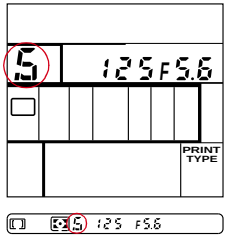
The shutter speed/aperture combinations available may be limited due to subject brightness. To indicate the program has been shifted, the Flexible Program indicator (*) appears beside the Auto-Multi Program or the Vari-Program indication on the Camera Status LCD panel.

Flexible Program is canceled when:

- ✔ You switch to a different Exposure mode
- ✔ You change Vari-Program options
- ✔ Two-Button Reset (page 6-41) is performed
- ✔ The camera power is turned Off

Operating in Shutter-Priority Auto Exposure Mode

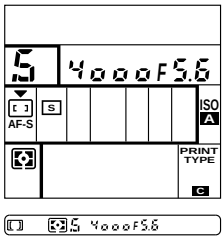




1 Press and hold the MDE button and rotate the Main-Command dial until ***S*** appears in the Camera Status LCD panel and viewfinder.

IMPORTANT:

The bulb setting does not work on your digital camera as on a film camera. Do not use this setting.



2 Remove your finger from the MDE button and rotate the Main-Command dial to set the desired shutter speed. Shutter speed indications change in 1/2 EV steps as follows:

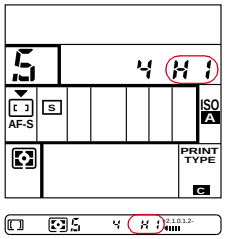
30” 23” 15” 11” 8” 5.5” 4” 3” 2” 1.5” 1” 1.4 2 3 4 6 8 11 15 23 30 45 60 90 125 180 250 350 500 750 1000 1500 2000 3000 4000

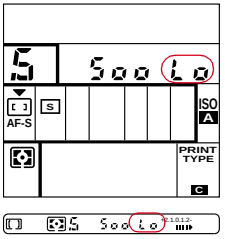
For the best results, do not use a shutter speed greater than 1/4 second.

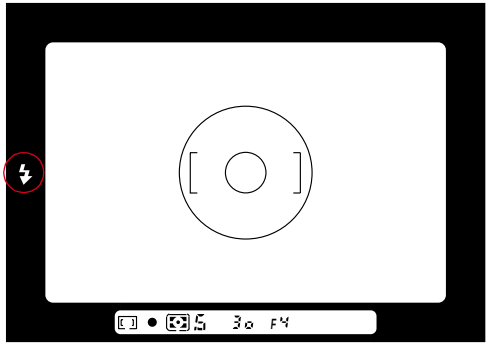
☛ If the Exposure meter LCD indications turn Off, lightly press the Shutter Release button to turn them On again.

3 Look inside the viewfinder, compose the shot, and lightly press the Shutter Release button. Confirm the focus and the automatically set aperture value.

4 To capture the image, fully depress the Shutter Release button.







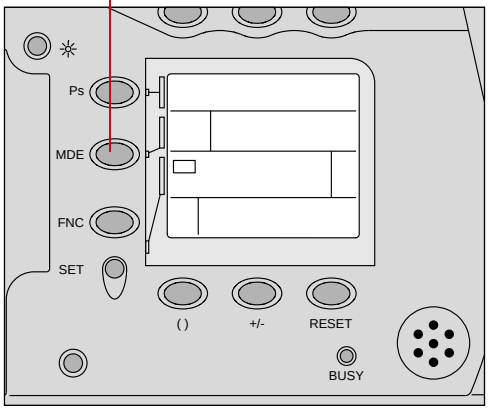
- If **HI** appears with the electronic analog display (lower right corner of viewfinder)*—Over-exposure alert: Select a higher shutter speed or use a Nikon ND filter.

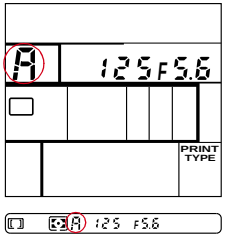
- If **Lo** appears with the electronic analog display (lower right corner of viewfinder)*—Under-exposure alert: Select a slower shutter speed or use the built-in flash or a Nikon Speedlight.

- If a green ⚡ mark appears—Flash photography is recommended: Use the built-in flash or a Nikon Speedlight.

* Shows the difference in value from a correct exposure. If the difference exceeds ±2EV, ▸ appears for underexposure and ◂ for overexposure.

Operating in Aperture-Priority Auto Exposure Mode

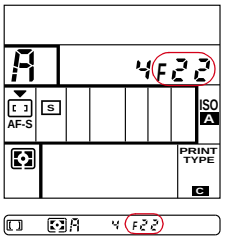


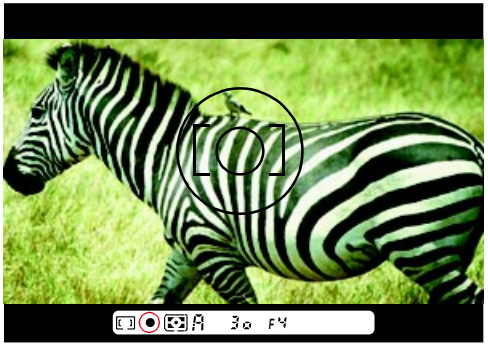


1 Press and hold the MDE button and rotate the Main-Command dial until ***A*** (for Aperture-Priority Auto) appears in the Camera Status LCD panel and viewfinder.

IMPORTANT:

If **FEE** *blinks in the Camera Status LCD panel—Lens setting error alert: The lens (other than the IX-Nikkor lens) is not set to its minimum aperture setting, causing the shutter to lock. Set the lens to its minimum aperture.*





2 Remove your finger from the MDE button and rotate the Sub-Command dial to set the desired aperture.

Aperture indications change in 1/2 steps as follows:

f1.4 f1.7 f2 f2.4 f2.8 f3.3 f4 f4.8 f5.6 f6.7 f8 f9.5 f11 f13 f16 f19 f22 f27 f32

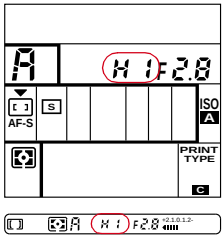
Available apertures are limited to those of the lens in use.

An intermediate figure (for example, f1.8, f3.3) indicates the maximum aperture of the lens in use. With zoom lenses, the maximum aperture for each of the various focal length settings is shown in 1/6 EV steps.

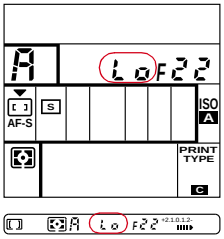
☛ If the Exposure meter LCD indications turn Off, lightly press the Shutter Release button to turn them On again.

3 Look inside the viewfinder, compose the shot, and lightly press the Shutter Release button. Confirm focus and the automatically set shutter speed.

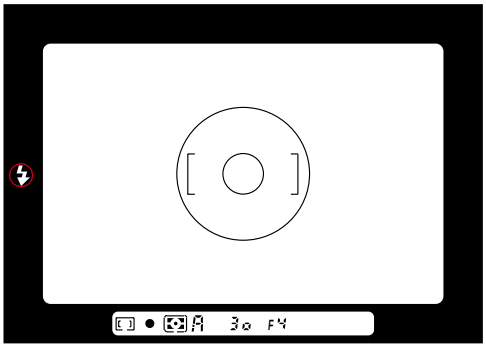
4 Fully depress the Shutter Release button to capture the image.



☛ If **HI** appears with the electronic analog display* —Over-exposure alert: Select a smaller aperture (larger f-number) or use a Nikon ND filter.



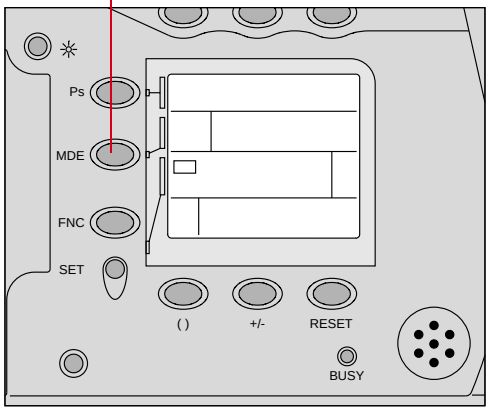
☛ If **Lo** appears with the electronic analog display* —Under-exposure alert: Select a wider aperture (smaller f-number) or use the built-in flash or a Nikon Speedlight.



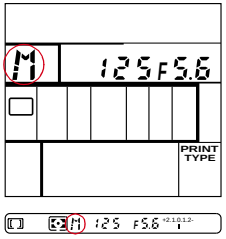
☛ If a green ⚡ mark appears—Flash photography is recommended: Use the built-in flash or a Nikon Speedlight.

* Shows the difference in value from a correct exposure. If the difference exceeds ±2EV, ▸ appears for underexposure and ◂ for overexposure.

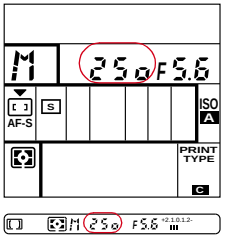
Operating in Manual Exposure Mode



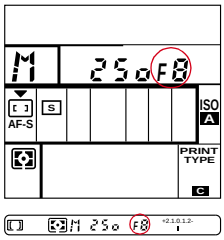
1 Press and hold the MDE button and rotate the Main-Command dial until ***M*** appears in the Camera Status LCD panel and viewfinder.

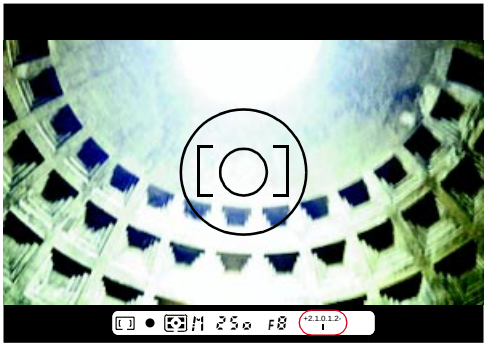


2 Remove your finger from the MDE button and rotate the Main-Command dial to set the desired shutter speed.



Refer to the “Operating in Shutter-Priority Auto Exposure Mode” section on page 6-18 for shutter speed indications and sequence.





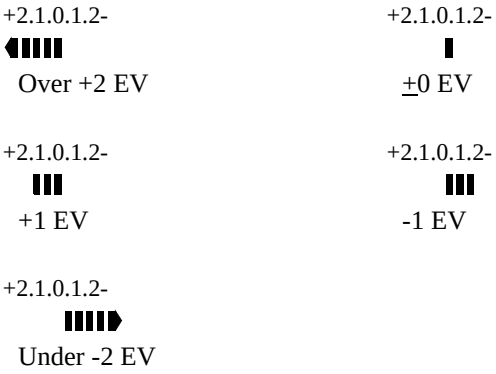
3 Rotate the Sub-Command dial to set the desired aperture.

Refer to the “Operating in Aperture-Priority Auto Exposure Mode” section on page 6-21 for aperture indications and sequence.

4 Look inside the viewfinder, compose the shot, and lightly press the Shutter Release button. Adjust the shutter speed and/or aperture by rotating the Main- or Sub-Command dials until the electronic analog display shows “0” or your desired value. Be sure to confirm focus.

5 Fully depress the Shutter Release button to capture an image.

Electric Analog Display Examples



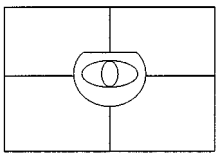
The Electronic Analog display in the viewfinder blinks when the subject is too dark for Metering. In this case, use built-in flash or a Nikon Speedlight.

Metering System

The available exposure Metering systems vary, depending on your camera.

Exposure Metering System	DCS 315	DCS 330
3D Matrix Metering	no	yes
Center-Weighted Metering	yes	yes
Spot Metering	yes	yes

3D Matrix Metering



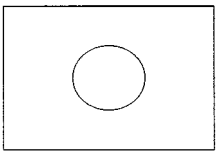
3D Matrix Metering is only available with the DCS 330 camera.

This system is ideal for quick operation in any exposure mode. With D-type AF Nikkor lenses, 3D Matrix Metering is automatically activated. 3D Matrix Metering uses three types of data: (1) scene brightness, (2) scene contrast and (3) distance to focused subject (distance information). Data on scene brightness and contrast are detected by the camera's eight-segment Advanced Matrix Sensor, while data on the distance to focused subject is detected and relayed by the D-type AF Nikkor lens in use.

Information sent by the camera's autofocus system indicating whether the main subject is centered is also considered in the computation. Through analyzing this data, your camera provides correct exposures even in extremely complex lighting situations.

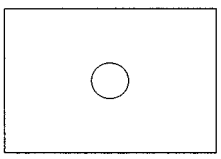
If a non-D-type AF Nikkor lens is used, Advanced Matrix Metering is performed. Although the lens does not provide distance information, the eight-digit Advanced Matrix Sensor provides a correct exposure in most lighting situations.

Center-Weighted Metering



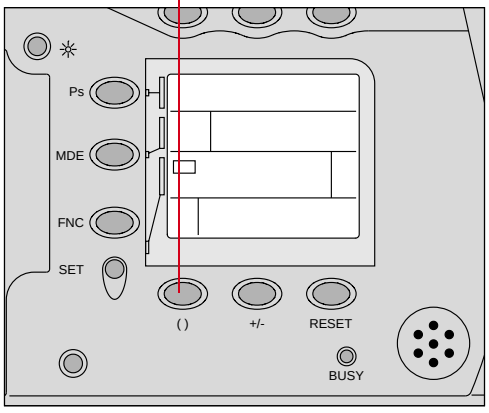
With approximately 65% of the meter's sensitivity concentrated on the 8.4 mm-diameter circle in the viewfinder and approximately 35% outside this circle, this meter is useful when you want to base your exposure on a specific area in the scene. In Auto Exposure mode, to measure the brightness of the picture's off-center portion, use the AE-L button. Refer to "Using the Auto Exposure Lock Function" on page 7-4.

Spot Metering

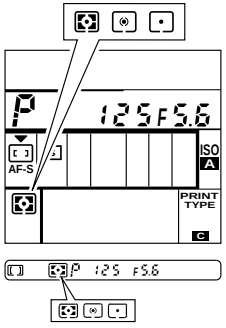


Nearly 100% of the meter's sensitivity is concentrated on the 2.5 mm-diameter circle (approximately 1% of entire frame) in the center of the viewfinder. Use this meter for extra-selective exposure control; experience is required to achieve optimum results.

Selecting the Metering System



Press and hold the Metering button and rotate the Main-Command dial to set the desired Metering mode.



The following indicators appear in the Camera Status LCD panel and viewfinder:

- 3D Matrix Metering (DCS 330 only)
- Center-Weighted Metering
- Spot Metering

DCS 315 only - The 3D Matrix Metering icon may appear on the Camera Status LCD panel when you press the Metering button. However, you will not be able to set 3D Matrix Metering. Use the Main-Command dial to select either Center-Weighted or Spot Metering.

AF Mode and Focus Area

Your camera features two Autofocus modes, Single Servo AF (**AF-S**) and Continuous Servo AF (**AF-C**). The autofocus system offers a choice of two focus areas, Wide ([ ]) and Spot ([ ]). AF mode and focus area are set simultaneously. Refer to “Setting AF Mode and Focus Area” on page 6-32.

AF-S Single Servo AF

Lightly pressing the Shutter Release button activates the lens focus adjustment. Because the priority is on correct focus, the shutter will lock until a stationary subject is in focus (showing ● in the viewfinder) or until the camera anticipates a moving subject to be in focus. After focus is achieved with a stationary subject, the focus remains locked for as long as the Shutter Release button is lightly pressed. This feature proves especially useful when recomposing a picture with the main subject off-center (page 6-36). If the camera-to-subject distance changes, however, you must refocus.

AF-C Continuous Servo AF

Under certain conditions, such as very fast action situations, you may want to capture an image even before focus is successfully achieved. In such cases, use Continuous Servo AF. As you lightly press the Shutter Release button, focus detection begins and the lens continues focusing for as long as you keep the button lightly pressed. Since the priority is on shutter release, you can capture an image regardless of focus status.

[ ] Wide Area AF

The Wide-Area focus brackets delineate the focus detecting area in the viewfinder. Subjects of sufficient brightness and detail can be detected within these brackets. In addition to general photography, autofocus with Wide-Area focus brackets is suitable for action photography where the moving subject requires a wide-range focus detection area.

[ ] Spot Area AF

Spot Area AF, in which the focus detecting area is designated by the 2.5 mm-diameter circle at the center of the viewfinder, is recommended when:

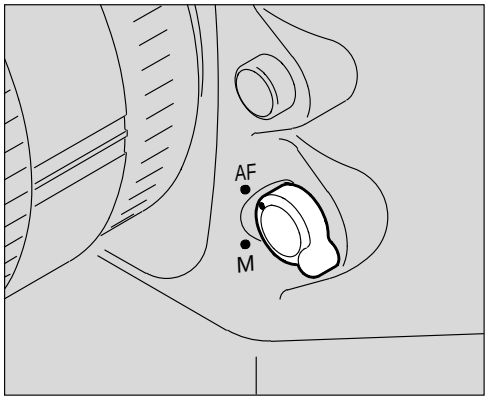
- ✔ The subject is considerably smaller than the wide-area focus brackets*
- ✔ The subject is obscured by an object, such as a fence, in the foreground.
- ✔ A particular portion of a subject—such as the eyes—must be in focus in a portrait.
- ✔ The subject is strongly backlit, such as someone standing beside a bright window.**

* Lock focus. Refer to “Autofocus with the Main Subject Off-Center” on page 6-36.

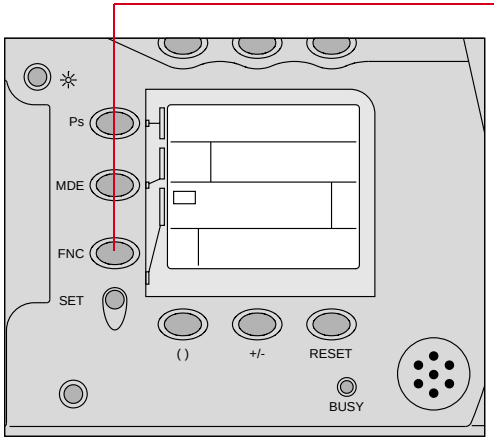
** To ensure that the subject is correctly exposed, refer to the “Using the Auto Exposure Lock Function” section on page 7-4.

Setting AF Mode and Focus Area

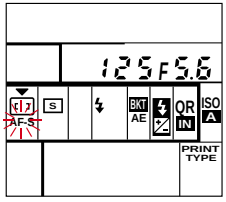
AF mode and focus area are set simultaneously.



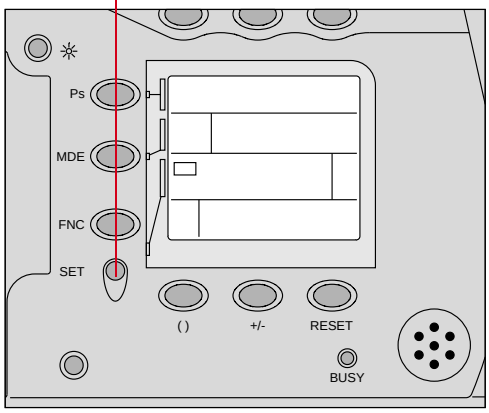
1 Set the Focus Mode selector to AF.



2 Press and hold the FNC button and rotate the Main-Command dial until the function set indicator (▼) appears in the Camera Status LCD panel and the symbol beneath it starts blinking.



3 Remove your finger from the FNC button and confirm that the symbol has stopped blinking.



4 Press and hold the SET button and rotate the Main-Command dial until the desired combination appears.

☛ When the built-in flash is activated or an attached Nikon Speedlight is turned On, Wide Area mode automatically switches to Spot Area mode, [ ] blinks in the Camera Status LCD panel, and [o] appears inside the viewfinder.

Single Servo AF Operation

With a Stationary Subject

Lightly press the Shutter Release button.

While autofocusing, a ◀ or ▶ (for front or rear focus) may appear. When the subject is in focus, the lens stops moving, the in-focus indication ● appears in the viewfinder, and the focus locks. If the subject moves, remove your finger from the Shutter Release button, then lightly press again to restart autofocus.

With a Moving Subject

Lightly press the Shutter Release button to automatically activate focus tracking. Confirm that a ● appears in the viewfinder, then fully depress the Shutter Release button. (The Shutter Release button can be depressed without confirming the ● indication; as soon as the subject comes into focus, the shutter will be released.)

Even when your camera is in Single Servo AF mode, it will recheck focus before every shutter actuation when your finger has not been lifted from the Shutter Release button. When the camera is set to Single Servo AF mode and Continuous Shooting Drive mode, you may notice some slight auto focus operation between shots.

When it is critical to obtain a constant focus on a stationary subject for multiple exposures, set the Drive mode to Single-Frame, or set the camera to Manual focus.

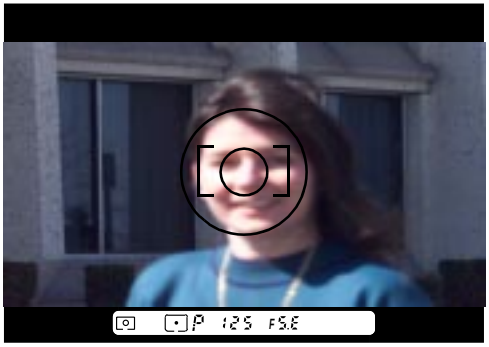
Focus tracking remains active as long as you keep the Shutter Release button lightly pressed. If the subject stops and a ● appears, the focus is still locked. If the subject moves again, remove your finger from the Shutter Release button and lightly press again to start autofocus with focus tracking.

Tips

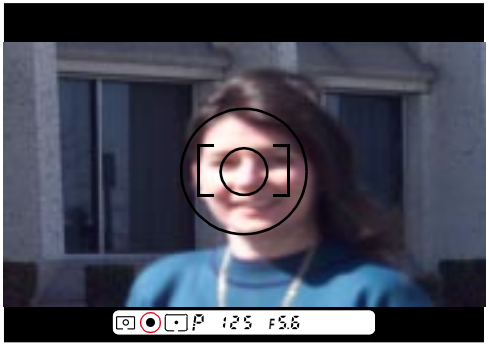
- ✔ If ◂ stays in the viewfinder, the subject is located closer than the closest focusing distance for the lens. Move away from the subject and refocus.
- ✔ If ▸ ◂ blinks in the viewfinder, autofocus is not possible and the shutter locks. Refer to “Special Focusing Situations” on page 7-18.
- ✔ Single Servo AF is convenient for off-center subjects. Refer to “Autofocus with the Main Subject Off-Center” on page 6-36.

Autofocus with the Main Subject Off-Center

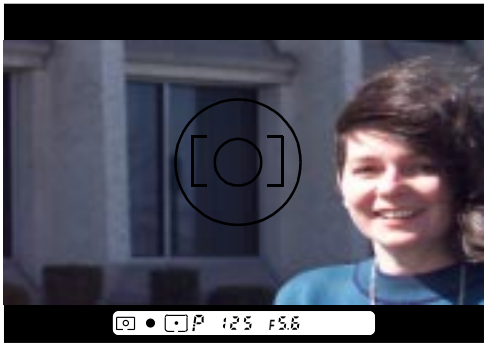
In Single Servo AF, the focus remains locked as long as the Shutter Release button is kept lightly pressed. Use this feature for shooting off-center subjects.



1 Center the main subject inside the viewfinder and lightly press the Shutter Release button to start Single Servo AF operation.



2 Confirm that the In-focus indicator ● appears in the viewfinder.



3 While lightly pressing the Shutter Release button, recompose as desired, then fully depress the Shutter Release button to capture the image.

☞ When recomposing, do not change the camera-to-subject distance.

Tips

- ✔ If there is a substantial difference in brightness between the subject and the background, switch Metering to Center-Weighted or Spot, and use the Auto Exposure Lock function. Refer to “Using the Auto Exposure Lock Function” on page 7-4.
- ✔ With a moving subject, the focus cannot be locked.

Continuous Servo AF Operation

With a Stationary Subject

Lightly press the Shutter Release button to start the autofocus operation. During the operation, ◀ or ▶ (for front or rear focus) may appear. When the subject is in focus, a ● appears in the viewfinder.

Unless you remove your finger from the Shutter Release button, the motor will start driving the lens again to obtain an in-focus picture if the subject moves.

If ◀ stays in the viewfinder, the subject is located closer than the closest focusing distance for the lens. Move away from the subject and refocus.

If ▶ ◀ blinks in the viewfinder, autofocus is not possible. Refer to “Special Focusing Situations” on page 7-18.

With a Moving Subject

When you lightly press the Shutter Release button, Focus Tracking is automatically activated. Confirm that a ● appears in the viewfinder, then fully depress the Shutter Release button. Because Focus Tracking remains activated as long as you keep lightly pressing the Shutter Release button, you do not have to refocus if the subject stops moving.

Because focus will not lock in Continuous Servo AF, select Single-Servo AF to capture an image of an off-center subject. Refer to “AF-S Single Servo AF” on page 6-30.

Using Drive Mode

Drive mode is similar to Film Advance mode in film cameras. There are two automatic Drive modes: Single-Frame ([S])and Continuous shooting ( ):

[S] Single-Frame Shooting

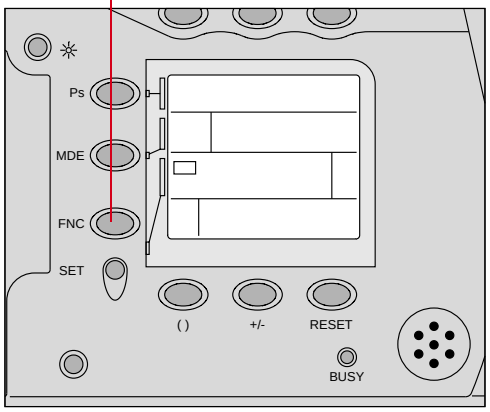
Fully depressing the Shutter Release button captures one image. After the shutter closes, the image data is read from the imager, then stored on the PC Card. To capture the next image, lift your finger from the button, then fully depress it again.

Continuous Shooting

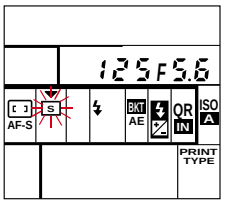
With the DCS 315 camera, images are captured continuously at a 2 frames per second burst for a maximum of 3 images every 11 seconds. With the DCS 330 camera, images are captured continuously at a 1 frame per second burst for a maximum of 3 images every 20 seconds. For Focus Tracking, shooting speed is slightly slower.

☛ These frame rates occur with fresh batteries or an AC adapter at normal temperatures (20° C/68° F), Manual Exposure Mode with a shutter speed of 1/125 or higher, no flash used, Manual Focus, and a Type III PC Card installed.

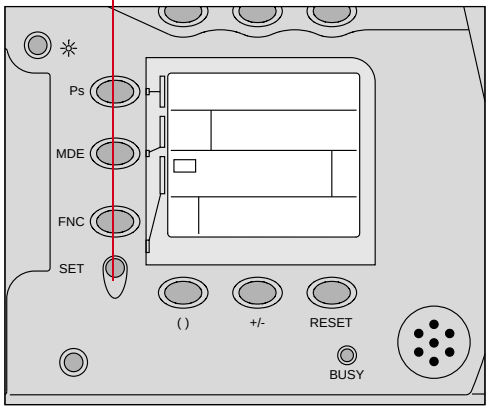
Setting the Drive Mode



1 Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel, and the S or ⧉ symbol starts blinking.



2 Remove your finger from the FNC button and confirm that the S or ⧉ symbol stops blinking.



3 Press and hold the SET button and rotate the Main-Command dial to set S for single-frame shooting or ⧉ for continuous shooting.

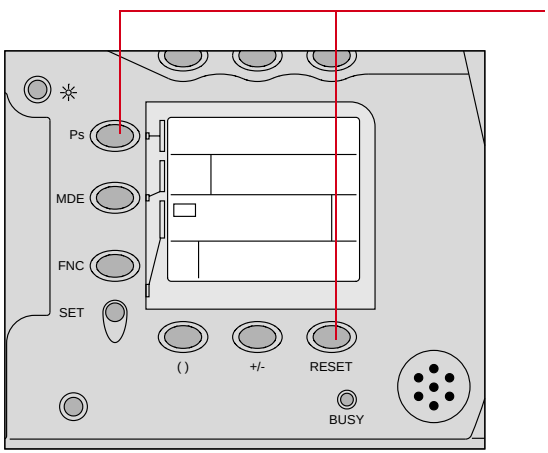
☛ When the built-in flash is activated, Continuous shooting is automatically switched to Single-Frame shooting. In this case, ⧉ blinks in the Camera Status LCD panel.

Using Two-Button Reset

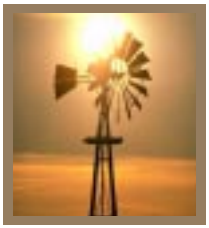
You use the Two-Button Reset function to reset the camera to its original factory settings as shown below:

Exposure mode:	Auto-Multi Program (***P***)
Metering system:	DCS 330: 3D Matrix ( ) DCS 315: Center Weighted ( )
Focus area:	Wide ( )
Focus mode:	Single Servo AF (**AF-S**)
Drive mode:	Single-Frame( )
Flash Sync mode:	Normal*
Exposure Compensation:	Cancel
Flexible Program:	Cancel
Auto Exposure Bracketing:	Cancel
Flash Exposure Bracketing:	Cancel
Self-timer:	Cancel

* With a built-in flash or accessory Nikon Speedlight turned on, appears for normal sync. If an accessory Nikon Speedlight attached is set to Rear-Curtain Sync, Rear-Curtain Sync will be performed.



Press and hold the Ps and the RESET buttons for more than two seconds.

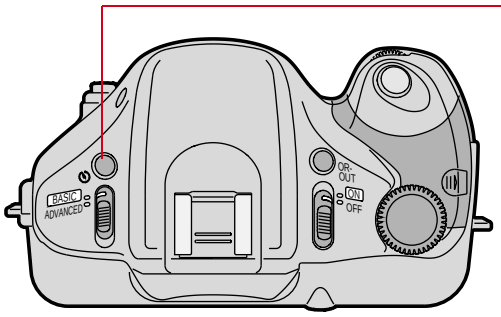


Special Functions

This section describes sophisticated photographic techniques such as Self-timer operation, Exposure Compensation, and Exposure Bracketing. It also explains the Quick Recall function, Manual focus, and special focusing situations.

Self-Timer Operation

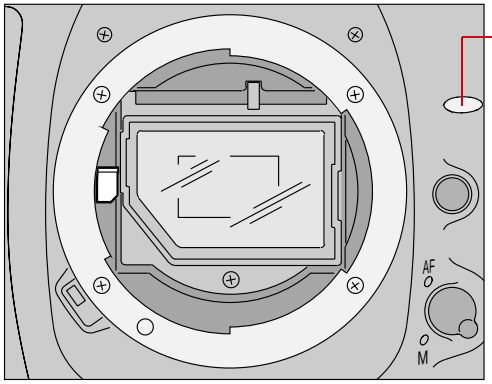
The Self-timer allows you to delay the exposure ten seconds from the time that you press the Shutter Release button.



1. Press the Self-timer button and confirm that a ⏲ appears in the Camera Status LCD panel.

   To cancel the self-timer before it functions, press and hold the Ps and RESET buttons for more than two seconds, or turn the camera Off.

2. Look through the viewfinder, then lightly press the Shutter Release button and confirm focus and exposure.



3 Fully depress the Shutter Release button.

The Self-timer LED blinks for eight seconds, then stops blinking, indicating that the image will be captured in two seconds.

After shooting, the Self-timer is canceled and the ⏲ disappears.

☛ To cancel the Self-timer during operation, turn the camera Off.

Tips

- ✔ When using any Auto Exposure mode, attach the (provided) eyepiece cover to the viewfinder eyepiece before setting the self-timer. The eyepiece cover prevents stray light from entering the viewfinder and affecting the exposure.
- ✔ In Single Servo AF mode, the Self-timer operates only when the in-focus indicator (●) appears inside the viewfinder. After the Self-timer operation starts, however, the shutter will be released even if the subject is out of focus.
- ✔ During the Self-timer operation, autofocus will not start even if you lightly press the Shutter Release button.
- ✔ Continuous shooting is not performed even if Drive mode is set to Continuous shooting.

Exposure Compensation

Exposure Compensation is a photographic technique that enables you to vary the final exposure settings from those measured by the camera's light meter. 3D Matrix Metering, which is available only on the DCS 330, employs exposure calculation methods that automatically apply Exposure Compensation based on scene brightness/contrast and distance information. (Refer to "3D Matrix Metering" on page 6-27.) As a result, your subject, whether centered in the viewfinder or not, is given a corrected exposure in most lighting situations.

Center-Weighted Metering (page 6-28) and Spot Metering (page 6-28) are available with both the DCS 330 and 315 cameras. If you identify an extreme lighting situation such as a severely backlit scene or one with extremes of contrast, use one of these built-in meters. Ultimately, only you know what the subject (or a part of it) requires in terms of exposure measurement. That's why your camera incorporates multiple exposure meters plus a variety of exposure compensation systems. Your creativity is always the final deciding and controlling factor.

Your DCS 300 series camera has a useful Histogram feature. Refer to "Viewing Overexposure Areas and Histogram Information" on page 9-5. Developed and patented by Kodak, the Histogram graphically depicts the distribution of gray-scale values among pixels based upon the captured file. It functions as a digital light meter by providing graphic representation of image exposure. You can adjust your camera's exposure settings based on what the histogram reveals.

To use the various Exposure Compensation functions, please refer to the following:

- ✔ "Viewing Overexposure Areas and Histogram Information" (page 9-5)
- ✔ "Using the Auto Exposure Lock Function" (page 7-4)
- ✔ "Obtaining a Meter Reading in Manual Exposure Mode" (page 7-6)
- ✔ "Exposure Compensation Operation" (page 7-7)
- ✔ "Auto Exposure Bracketing" (page 7-9)

The results will vary depending on conditions, so you will want to experiment with each of the methods listed above.

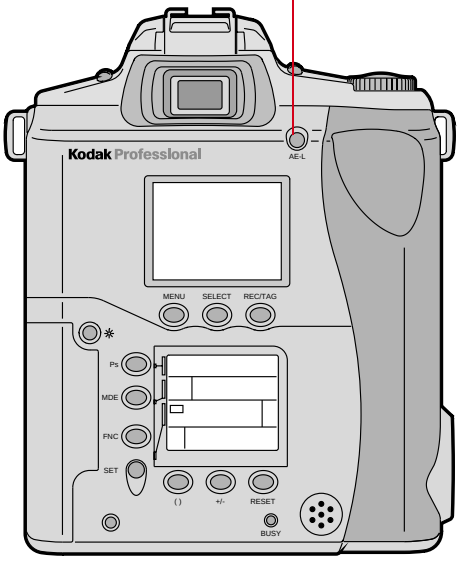
When using the Center-Weighted or Spot Meter, keep in mind that the exposure indicated will assume that the subject's reflectance is equivalent to 18%. If the subject varies from this reflectance, you must adjust the exposure. In general, a white subject will have about a 90% reflectance, and opening a further 2.5 f/stops will bring the exposure back to the equivalent of an 18% reading. Another rule of thumb is that when shooting a landscape, the light meter reading from green grass is roughly equivalent to 18% reflectance.

Using the Auto Exposure Lock Function

In Auto Exposure mode, when you want to control exposure based on the brightness of a specific area within the scene, use the Auto Exposure Lock function. To use this function, you should first switch to Center-Weighted or Spot Metering.

1 Center the main subject inside the viewfinder or move in closer until the subject fully covers the reference circle for Center-Weighted or Spot Metering.

2 Lightly press the Shutter Release button, and confirm the shutter speed and aperture in the viewfinder.



3 Press and hold the AE-L button to lock auto exposure.

While you are holding the AE-L button, the flash recommended light (green ⚡) does not light up in the viewfinder.

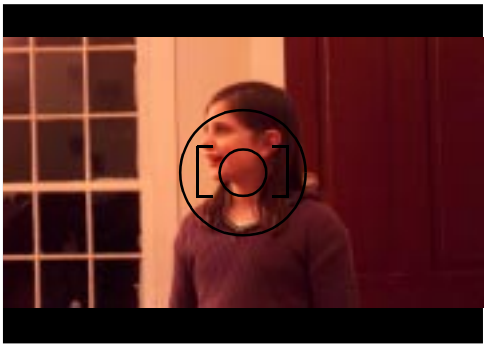
4 While holding the AE-L button, recompose the picture, focus again, and shoot.

Tips

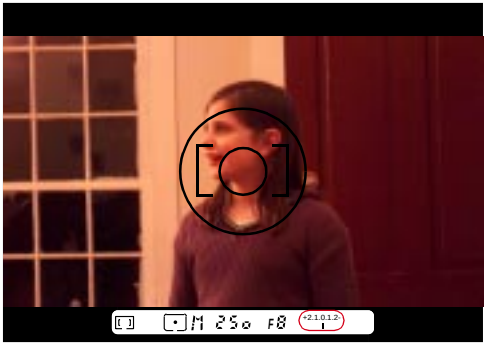
- ✔ In Single Servo AF mode, if recomposing the picture may have changed the subject-to-camera distance, refocus by briefly removing your finger from the Shutter Release button and then lightly press the button again.
- ✔ Continuous Servo AF is not recommended if the subject will move off-center after you recompose with AE-lock.

Obtaining a Meter Reading in Manual Exposure Mode

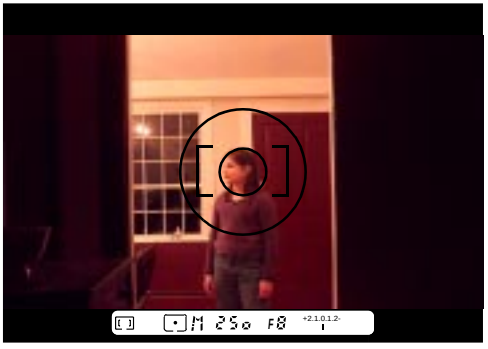
To give a particular subject your desired exposure in Manual Exposure mode (page 6-14), switch to Center-Weighted or Spot Metering, then do as follows:



1. Center the main subject inside the viewfinder and, if necessary, move closer until the subject fully covers the reference circle for Center-Weighted or Spot Metering.
2. Lightly press the Shutter Release button.



3. Adjust the shutter speed and aperture until the viewfinder's Electronic Analog display shows the desired exposure.



4. Recompose the picture and shoot.

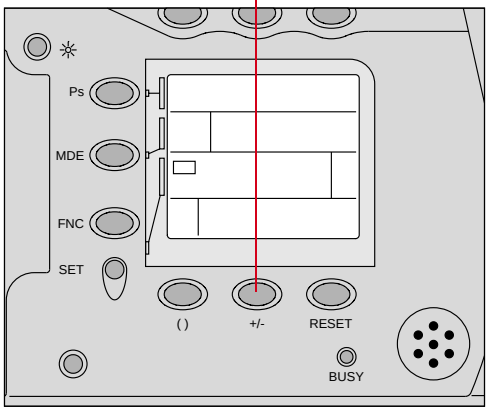
Exposure Compensation Operation

You can compensate for a background that is too bright or too dark. When a background is too bright, compensate in the + direction; when a background is too dark, compensate in the - direction. In flash photography, the flash output level is also compensated. After capturing your images, be sure to reset the control to “0.0” to resume normal operation.

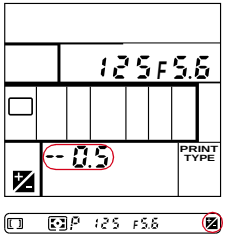
Without Compensation

With Compensation

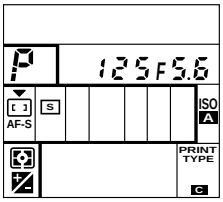
☛ Exposure Compensation has no effect in Manual Exposure mode (**M**).

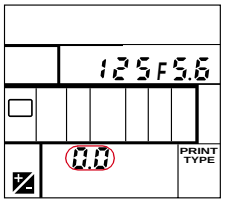


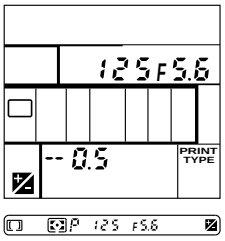
1 Press and hold the Exposure Compensation +/- button and rotate the Main-Command dial until the desired compensation value appears on the Camera Status LCD panel.



The +/- symbol appears in the Camera Status LCD panel and inside the viewfinder. (The example at the left shows a -1/2 EV compensation setting.)







Once set, Exposure Compensation remains fixed until reset. The +/- symbol remains in the Camera Status LCD panel (indicating that Exposure Compensation is On), until you remove your finger from the Exposure Compensation button.

The +/- symbol disappears from the viewfinder when the exposure meter automatically turns Off.

2 After shooting, reset the compensation value to “0” to resume normal operation.

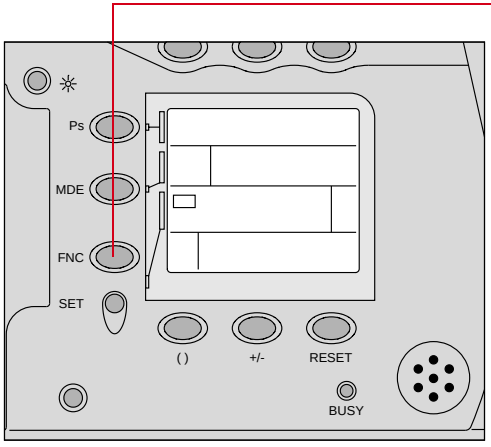
You can cancel Exposure Compensation by pressing and holding the Ps and RESET buttons for more than two seconds (Two-Button Reset).

To confirm the compensation value on the Camera Status LCD panel, press the Exposure Compensation button.

Auto Exposure Bracketing

In situations where you might find it difficult to obtain a proper exposure, you can shoot the same subject at three different exposures, using a varying exposure compensation degree of 0.5 EV or 1 EV.

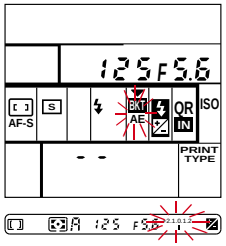
Setting a compensation degree of 0.5 EV, for example, lets you capture three images: the first with no compensation, the second with a -0.5 EV compensation, and the third with a compensation of +0.5 EV.

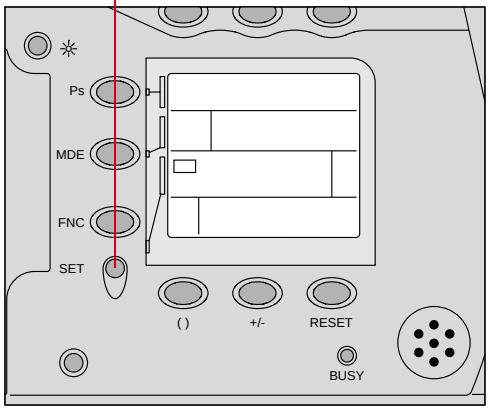


1 Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel, and **BKT** and **AE** start blinking.

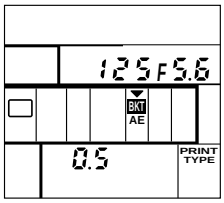
Removing your finger from the FNC button causes **BKT** and **AE** to stop blinking. The Electronic Analog display starts blinking inside the viewfinder.

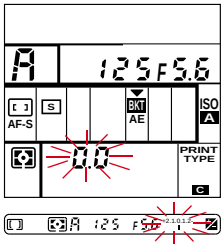
☛ Auto Exposure Bracketing and Flash Exposure Bracketing cannot be set simultaneously.





2 Press and hold the SET button and rotate the Main-Command dial until the desired compensation degree (***0.5*** or ***1.0***) appears.





3 Remove your finger from the SET button to complete the setting.

0.0 starts blinking in the Camera Status LCD panel to indicate no compensation, and the Electronic Analog display starts blinking inside the viewfinder.

To cancel Auto Exposure Bracketing before starting or during bracketing, turn the camera power Off then On again, or press and hold the Ps and RESET buttons for more than two seconds (Two-Button Reset).

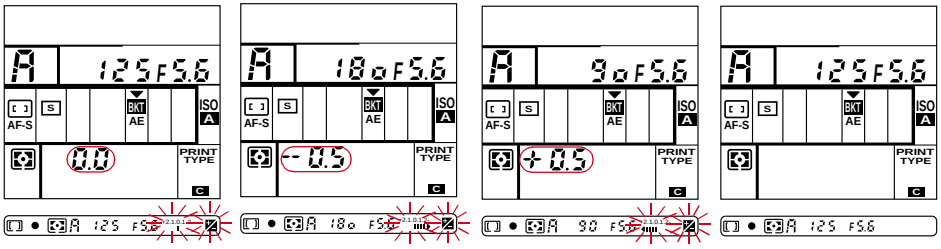
4 Compose the picture, confirm focus and exposure, then fully depress the Shutter Release button.

In Single-Frame shooting ([S]): Fully depress the Shutter Release button three times to take the three shots.

In Continuous shooting ( ): Fully depress the Shutter Release button and hold it in until three shots are taken.

After three shots are taken, Auto Exposure Bracketing is automatically canceled.

First shot is taken. Second shot is taken. Third shot is taken.



Tips

- ✔ In Programmed Auto Exposure mode, the shutter speed and aperture vary. In Shutter-Priority Auto Exposure mode, the aperture varies. In Aperture-Priority Auto and Manual Exposure modes, the shutter speed varies.
- ✔ When using Auto Exposure Bracketing with the Exposure Compensation function, the compensated value will be added. If an exposure is compensated at +1 EV and you set Auto Exposure Bracketing at 0.5 EV, for example, the first shot will be taken with +1 EV compensation, the second shot with +0.5 EV compensation and the third shot with +1.5 EV compensation.
- ✔ In flash shooting, Auto Exposure Bracketing compensates for background exposure, but does not affect the flash output level.

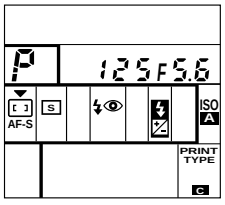
Using the Quick Recall (QR) Function

You can customize and save the following settings, then quickly recall them:

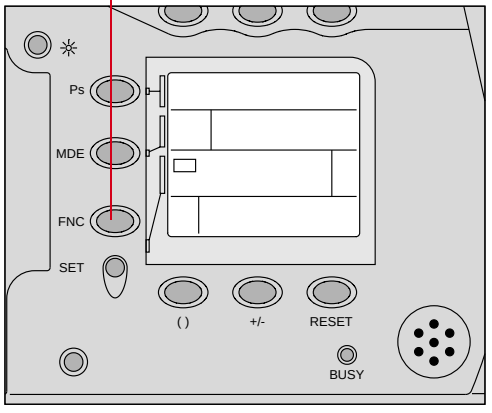
- ✔ Exposure mode (including Vari-Program)
- ✔ Metering system
- ✔ Focus area/AF mode
- ✔ Drive mode
- ✔ Flash Sync mode
- ✔ Exposure Compensation function
- ✔ Flash Output Level Compensation
- ✔ Auto Exposure/Flash Exposure Bracketing

You can save the settings as a group, and save up to three groups. Three identification numbers (1 to 3) are provided for custom settings.

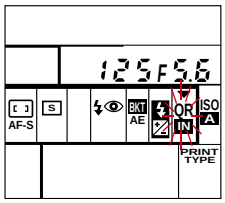
Saving Customized Settings for Quick Recall

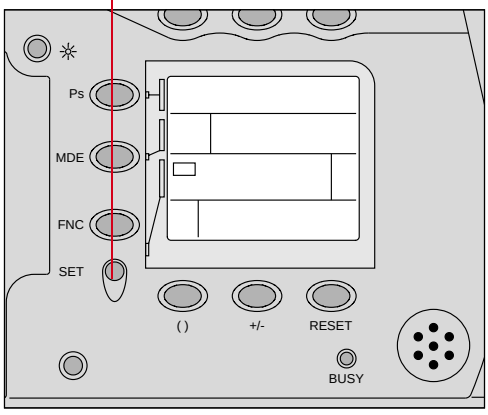


1 Confirm the various camera settings. Change as needed.



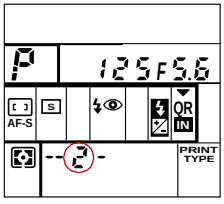
2 Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel and **QR** and IN start blinking.





3 Press and hold the SET button and rotate the Main-Command dial until the desired custom setting number (1, 2, or 3) appears in the Camera Status LCD panel.

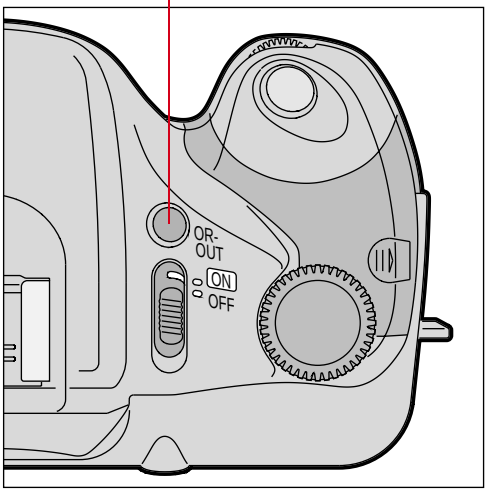
4 Release the SET button.



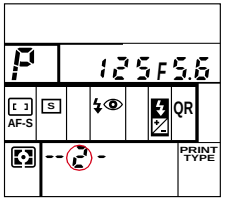
Tips

- ✔ To cancel memory settings, press and hold the SET button and rotate the Main-Command dial until -- -- appears in the Camera Status LCD panel.
- ✔ If you have already set the QR identification number and then select the same identification number to save another group of settings, the previous settings will be cleared.

Recalling Customized Settings



Press and hold the QR-OUT button and rotate the Main-Command dial until your previous memory setting identification number appears. The customized settings appear in the Camera Status LCD panel. Remove your finger from the QR-OUT button. The QR identification number disappears.



Tips

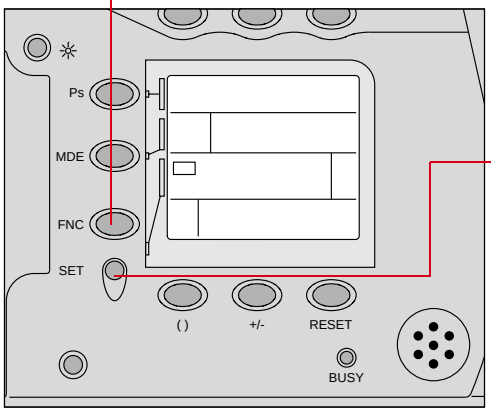
- ✔ The Flexible Program function is canceled when you recall any QR identification number.
- ✔ If you have recalled one of the QR identification numbers, the recalled number appears in the Camera Status LCD panel when you press QR-OUT button.
- ✔ After recalling one of the QR identification numbers, you can adjust any or all settings. Doing so does not cancel the QR setting. You can recall the setting again by pressing the QR-OUT button and selecting the same number.

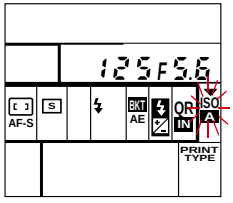
Changing ISO Settings

In BASIC mode, the ISO is ISO 200 (A). (While BASIC mode is available on your camera, ADVANCED mode is recommended for the best results.)

You can manually set ISO in ADVANCED mode. The range for the DCS 315 is 100-400, and the range for the DCS 330 is 125-400.

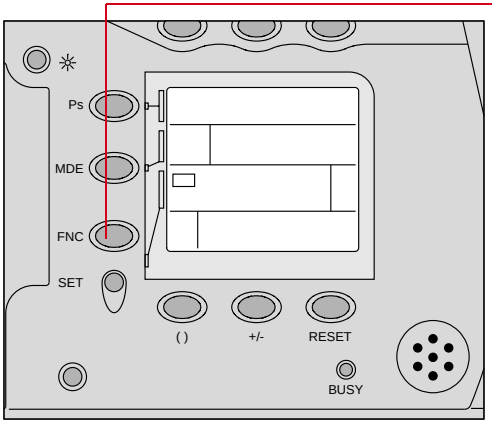
Setting Auto ISO (ISO 200)

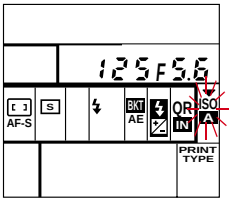




1. Press and hold the FNC button and rotate the Main-Command dial until the function set indicator (▼) appears in the Camera Status LCD panel and **ISO** starts blinking.
2. Press and hold the SET button and rotate the Main-Command dial until A appears.

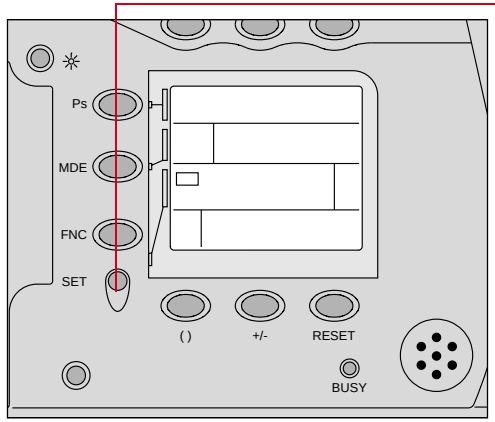
Manually Setting ISO

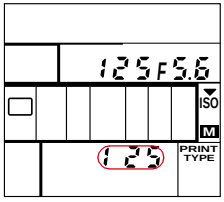




1 Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel and **ISO** and A (if auto ISO is selected) start blinking.

2 Remove your finger from the FNC button and confirm that the **ISO** and A stop blinking.



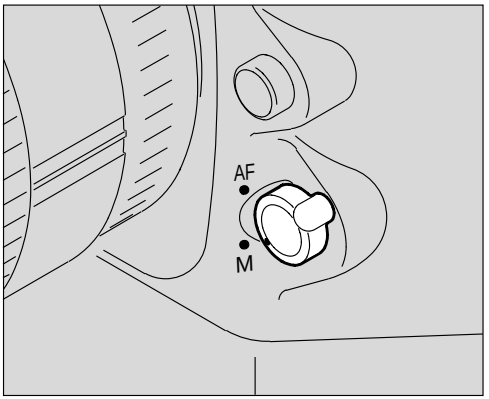


3 Press and hold the SET button and rotate the Main-Command dial until the desired ISO appears in the Camera Status LCD panel and M appears. Remove your finger from the SET button to complete the setting.

To confirm the ISO setting, press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears and **ISO** starts blinking. Press the SET button so the ISO appears in the Camera Status LCD panel.

☛ DCS 315 only: ISO values of less than ISO 100 may appear on the Camera Status LCD panel. ISO settings below 100 will automatically be changed to ISO 100 before capture.

Using Manual Focus



1 Set the Focus Mode selector to **M**.

☛ With the Focus Mode selector at **M**, only [ ] for wide area or [ ] for Spot area appears in the Camera Status LCD panel.

2 Look through the viewfinder and rotate the lens focusing ring until the image on the clear matte field appears sharp.

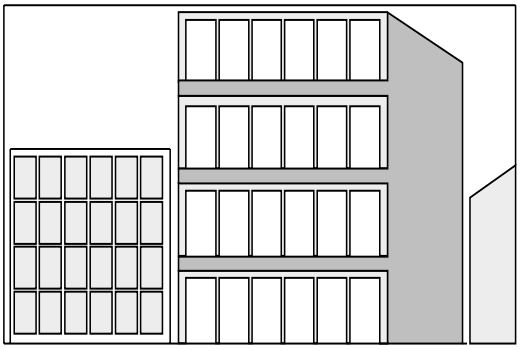
Special Focusing Situations

Autofocus operation depends on general lighting, subject contrast and detail, and other technical factors. In situations where autofocus is not possible, ▶ ◀ blinks in the viewfinder indicating that you should focus manually with the clear matte field or focus automatically on another subject located at the same distance.

Very dark subject:

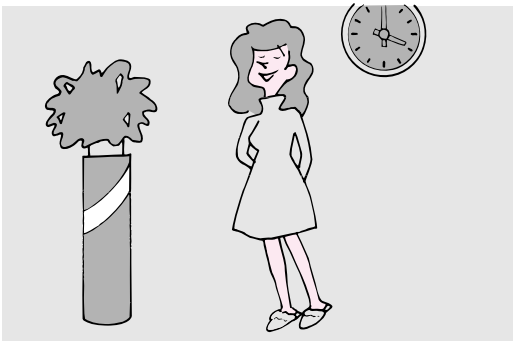
Focus manually with the clear matte field, or for Single Servo AF, focus on another brighter subject located at the same distance, then use Focus Lock (page 6-36) or use a Nikon autofocus Speedlight to focus automatically with the Speedlight's AF illuminator.

Patterned subject or scene, such as building windows



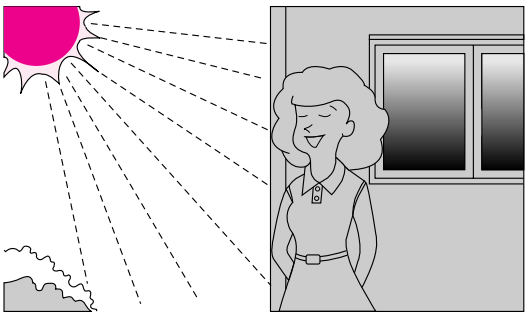
Focus manually with the clear matte field or use Single Servo AF to focus on another subject with no pattern. The second subject should be at the same distance as the first. Lock focus (page 6-36) and recompose.

Low-contrast subject



Focus manually with the clear matte field, or use Single Servo AF to focus on another subject at the same distance but with more contrast, then lock focus and recompose.

Strong lighting



With a strongly backlit subject, a bright or shiny subject, or a scene in which there is a pronounced difference in brightness, focus manually with the clear matte field.

In the following situations, ignore the In-focus indicator (●):

- ✔ When subjects are located at different distances (for example, animals inside a cage or a person over a fence), use Spot Area for autofocus (page 6-31), or focus manually with the clear matte field.
- ✔ When using a linear polarizing filter or other special filter, such as a soft-focus filter, focus manually with the clear matte field. (A circular polarizing filter can be used in connection with the autofocus operation.)

Flash Photography

Flash can be used in bright conditions as well as dim light to fill in shadows with extra light. This technique is called Fill-Flash.

With the camera's built-in flash or any dedicated Nikon Speedlight, you can perform an advanced Fill-Flash technique, Automatic Balanced Fill-Flash.

By making Fill-Flash a standard part of your photography, you can take better flash pictures than ever before.

CAUTION: ⚠

Use only Nikon Speedlights. Other units may damage the camera's electrical circuits due to incompatible voltage requirements (250V or higher), electric contact alignment or switch phase.

Situations Where Flash is Required

When subject brightness is insufficient, lightly pressing the Shutter Release button to activate the exposure meter also turns on the Flash Recommended light (green) inside the viewfinder. You can use the built-in flash or Nikon Speedlight anytime, regardless of ambient lighting. If your subject is backlit, for example, you can use the built-in flash to illuminate your subject and fill in shadows.

Factors Affecting TTL Flash

Nikon's TTL flash sensor relies upon the reflected light from the film plane surface, which Kodak has replaced with an imager. The reflectance factor of film is quite different than the imager; this affects the overall performance of the TTL modes.

For best results, reduce the flash compensation factor by 2 f/stops (-2) and judge the resulting image. Auto flash units, or Speedlights that support the Auto mode, may produce more consistent results.

Using TTL Auto Flash

With TTL flash, the camera's flash light sensor measures the flash illumination reflected by the subject onto the imager, and shuts off the flash when the measurement indicates correct exposure. TTL auto is recommended for most common flash shooting situations. The DCS 315 provides three types of TTL auto flash; the DCS 330 provides four types. (See the table below.) TTL Auto flash is available when you use the built-in flash or a dedicated Nikon Speedlight and Nikkor CPU lens:

Metering system	Exposure mode	TTL auto flash
Matrix Metering	***P*** Auto-Multi Program ***Ps*** Vari-Program ***S*** Shutter-Priority Auto ***A*** Aperture-Priority Auto	Matrix Balanced Fill-Flash (DCS 330 only)
	M Manual	Standard TTL flash
Center-Weighted Metering/ Spot Metering	***P*** Auto-Multi Program ***Ps*** Vari-Program ***S*** Shutter-Priority Auto ***A*** Aperture-Priority Auto	Center-Weighted Fill-Flash/ Spot Fill-Flash
	M Manual	Standard TTL flash

Matrix Balanced Fill-Flash

Matrix Balanced Fill-Flash is only available with the DCS 330 camera.

The Matrix meter reads the light levels and pattern in a scene, then signals the computer, which calculates available light exposure settings. As the shutter is released, the TTL sensor senses available light, then relays this information to the computer, which automatically compensates flash output level.

The result is a well-balanced photo that provides a correct exposure for both background and the foreground subject.

Center-Weighted Fill-Flash/Spot Fill-Flash

By pointing the Center-Weighted or Spot circle at different parts of the scene, you can influence the brightness levels of available-light exposures. To maintain a desired exposure when recomposing the picture, use the Auto Exposure Lock function (page 7-4).

Flash output level will be properly compensated to produce a natural fill-flash effect.

Standard TTL Flash

Although this mode does not offer automatic flash output levels, your subject will be correctly exposed.

TTL Performance

The TTL Flash System in the Pronea camera body was optimized to work with the reflectivity of Advanced Photo System (APS) film. Because the imager in your DCS 300 series camera does not have the same reflectivity properties as APS film, the TTL Flash system performance does not demonstrate the same robustness. As you capture flash images using lenses of various focal lengths and different apertures, you may observe variations in TTL performance. You should use your camera's Histogram (page 9-5) to verify the exposure of flash images. If you need to modify the exposure, you can shift the exposure in subsequent captures using Exposure Compensation or Flash Output Compensation. You may also use Flash Exposure Bracketing to bracket your shots.

Flash Sync Mode

Your camera offers five flash sync modes: Normal Sync, Red-Eye Reduction, Red-Eye Reduction with Slow Sync, Slow Sync, and Rear-Curtain Sync.

Normal Sync

Suitable for most flash-shooting situations. In Programmed Auto or Aperture-Priority Auto Exposure mode, shutter speed is controlled between 1/180 second and 1/60 second.

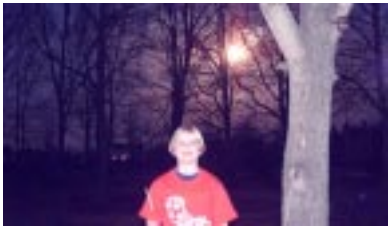
Red-Eye Reduction

When shooting people or animals in dim light using a flash, the subjects' eyes may sometimes appear red in color pictures. This function reduces the possibility of red-eye.

Red-Eye Reduction with Slow Sync

Red-eye reduction can be performed with Slow Sync (described below.)

Slow Sync



When flash pictures are taken in dim light at high shutter speeds, the background may turn out dark. Slow Sync improves background exposures by extending the automatically controlled shutter speed range down to 30 seconds, which enables background details to emerge.

Use a tripod to prevent camera shake.

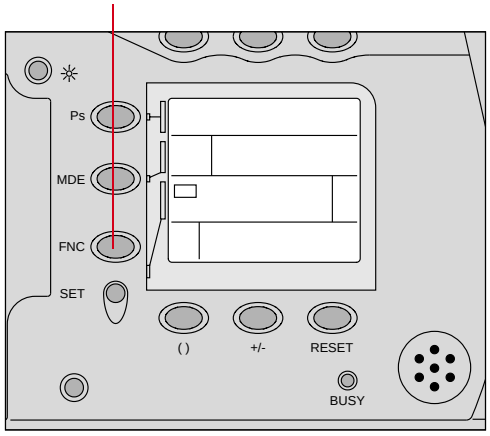
Rear-Curtain Sync

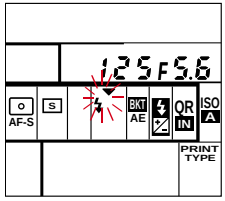
With Rear-Curtain Sync set, the flash fires at the end of the exposure, turning available light into a stream of light that follows the moving, flash-illuminated subject.

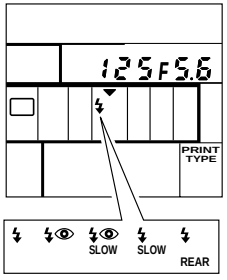
Rear-Curtain Sync is particularly effective at slow shutter speeds. When selecting a slow shutter speed, use a tripod to prevent camera shake.

To select your desired shutter speed, set the Exposure mode to Shutter-Priority Auto or Manual.

Selecting Flash Sync Mode

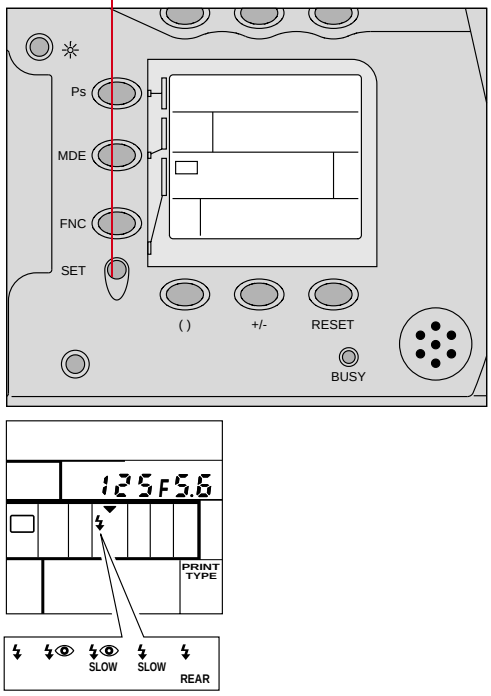






1 Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel and the Flash symbol starts blinking. (The different types of flash symbols are shown in the illustration at the bottom of the page.)

2 Remove your finger from the FNC button and confirm that the flash symbol stops blinking.



3 Press and hold the SET button and rotate the Main-Command dial until the desired flash symbol appears.

- Normal Sync
- Red-Eye Reduction
- Red-Eye Reduction with Slow Sync
- Slow Sync
- Rear-Curtain Sync.

When you remove your finger from the FNC button, the flash symbol disappears.

Tips

- ✔ For Normal Sync with a Nikon Speedlight SB-24/SB-25/SB-26, set the Speedlight's Flash Sync Mode selector to NORMAL.
- ✔ Red-Eye Reduction and Red-Eye Reduction with Slow Sync can be set only with the built-in flash or Nikon Speedlight SB-26/SB-27. Setting Red-Eye Reduction with a Speedlight that does not offer red-eye reduction causes  to blink in the Camera Status LCD panel.
- ✔ For Slow Sync/Red-Eye Reduction with Slow Sync, set the Exposure mode to Auto-Multi Program (***P***) or Aperture-Priority Auto (***A***).
- ✔ Because Rear-Curtain Sync is particularly effective at slow shutter speeds, Slow Sync is automatically set at the same time Rear-Curtain Sync is set in Auto-Multi Program (***P***) or Aperture-Priority Auto (***A***) Exposure modes.
- ✔ Rear-Curtain Sync cannot be set when Vari-Program is in use.
- ✔ For Rear-Curtain Sync with a Nikon Speedlight SB-24/SB 25/SB-26, set the Speedlight's Flash Sync Mode selector to **REAR**.
- ✔ For built-in flash operation, refer to the "Using the Built-in Flash" section on page 8-9.

Using the Built-in Flash

Your camera includes a built-in flash which you can use when professional flash is not needed or available. For a more sophisticated, longer range flash, you may want to use a Nikon Speedlight.

Built-in Flash Specifications

- ✔ Usable ISO
  DCS 315: 100 - 400
  DCS 330: 125 - 400
- ✔ Guide number: Approximately 20 (m) at ISO 200, and 20°C
- ✔ Angle of coverage: 20mm or longer lens*
  *Focal length used here is for IX-Nikkor lenses.

WARNING: ⚠

- ✔ Do not touch the built-in flash while it is firing; normal operation can cause it to become very hot.

Tips

- ✔ Never fire the flash more than 20 times consecutively at intervals of 5 seconds or less; doing so could impair flash performance. After 20 consecutive firings at intervals of 5 seconds or less, let the flash rest at least 10 minutes before firing again.

  Continuous flash use may cause the camera's handgrip to become hot; this is normal. Continuous firing results in a longer interval before the ready-light comes on as it takes longer for the flash to automatically recharge.
- ✔ When the built-in flash is activated, an accessory Speedlight will not fire. When using a Speedlight, keep the built-in flash in the locked down position.
- ✔ When Red-Eye Reduction is selected, the Red-Eye Reduction lamp on the flash lights up for approximately one second before the shutter releases to decrease the size of the subject's pupils, thereby reducing red-eye appearance.

Usable Lenses with Built-In Flash

Non-Zoom AF Nikkor lenses

20mm to 300mm non-Zoom AF Nikkor lenses (AF-S 300mm f/2.8D cannot be used when shooting a subject within 3.7m/12.1 ft.). AF 300mm f/2.8 ED-IF cannot be used.

Zoom AF Nikkor lenses.

Zoom AF Nikkor lenses	
IX-Nikkor 20-60mm f/3.5-f/5.6	35-70mm f/2.8D
IX-Nikkor 24-70mm f/3.5-f/5.6	35-80mm f/4.5-f/5.6D
IX-Nikkor 60-180mm f/4-f/5.6	35-105mm f/3.5-f/4.5D IF
20-35mm f/2.8D IF[1]	35-135mm f/3.5-f/4.5
24-50mm f3.3-f4.5D	70-210mm f/4-f/5.6D
24-120mm f/3.5-5.6D IF[2]	75-300mm f/4.5-f/5.6
28-70mm f/3.5-f/4.5D	80-200mm f/2.8D ED
28-80mm f/3.5-5.6D	80-200mm f/4.5-5.6D
28-85mm f/3.5-f/4.5[3]	

1 Cannot be used when shooting a subject within 0.8m (2.6 ft.) at 35mm focal length.

2 Cannot be used when shooting a subject within 1.4 (4.6 ft.) at 24mm focal length

3 Cannot be used when shooting a subject within 1.3m (4.3 ft.) at 35mm focal length.

Tips

- ✔ Do not use a lens hood; it could cause slight vignetting.
- ✔ With zoom lenses, do not shoot within the macro range.

Flash Shooting Distance Range

The distance ranges for flash at various combinations of aperture and ISO are shown in the table below:

ISO	100	200	400	Flash shooting distance range (m/ft)
Guide number (m/ft)	14/45.9	20/6.5	28/91.9	
Aperture	1.4	2	2.8	2.0 - 9.9/6.6 - 32.5
	2	2.8	4	1.4 - 7.0/4.6 - 23
	2.8	4	5.6	1.0 - 5.0/3.3 - 16.4
	4	5.6	8	0.7 - 3.5/2.3 - 11.5
	5.6	8	11	0.6 - 2.5/2.0 - 8.2
	8	11	16	0.6 - 1.8/2.0 - 5.9
	11	16	22	0.6 - 1.3/2.0 - 4.3
	16	22	32	0.6 - 0.9/2.0 - 3.0

Shutter Speed/Aperture in Flash Shooting

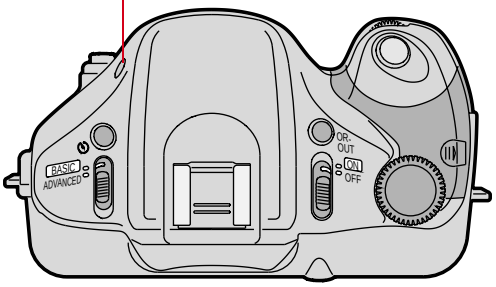
The shutter speed/aperture ranges for the various exposures modes in flash shooting are shown in the table below:

Exposure mode	Shutter speed	Aperture
Programmed Auto (***P***, ***Ps***)	Automatically controlled from 1/180 second to 1/60 second[1]	Aperture is automatically controlled between f/2.8 and lens minimum aperture.
Shutter-Priority Auto (***S***)	Manually set as desired from 1/180 second to 30 seconds[2]	Aperture is automatically controlled between lens maximum and minimum aperture.
Aperture-Priority Auto (***A***)	Automatically controlled from 1/180 second to 1/60 second[1]	Manually set as desired. Refer to "Flash Shooting Distance Range" on page 8-11.
Manual (***M***)	Manually set as desired from 1/180 second to 30 seconds[2]	

1 With Slow Sync or Rear-Curtain Sync, the controlled shutter speed range automatically extends down to 30 seconds.

2 With the shutter speed of 1/250 second or faster, the camera automatically shifts to 1/180 second when the built-in flash is activated (or an accessory Nikon Speedlight turned on). The blinking shutter speed indication in the Camera Status LCD panel shows the manually set shutter speed while the shutter speed indication in the viewfinder shows **18o**.

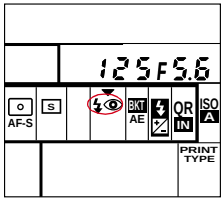
Operating the Built-in Flash



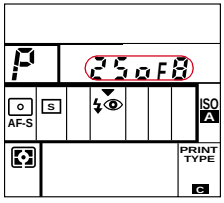
1 Press the Flash Lock-release button to release and activate the flash.

When Continuous shooting ( ) is set, the camera automatically switches to Single-Frame shooting ([S]) as soon as the flash pops up, and blinks in the Camera Status LCD panel.

When Wide Area focus ( ) is set, the camera automatically switches to Spot Area focus ([ ]) as soon as the flash pops up. blinks in the Camera Status LCD panel, and appears in the viewfinder.



2 Set the Flash Sync mode as desired (page 8-4). Red-Eye Reduction mode is shown in the illustration as an example.



3 Set the shutter speed and aperture (Refer to the table on page 8-12).

4 Compose the shot and lightly press the Shutter Release button. Confirm that the Focus Confirmation (●) and Flash Ready light (red ⚡) appear in the viewfinder.

If an Electronic Analog display appears in the viewfinder while you are using Shutter-Priority Auto, Aperture-Priority Auto or Manual Exposure mode, the background may be underexposed.

To obtain a correct exposure for the background:

- ✔ Shutter-Priority Auto Exposure mode: Set a slower shutter speed.
- ✔ Aperture-Priority Auto Exposure mode: Set Flash Sync mode to Slow Sync to extend the automatically controlled shutter speed range, or set a wider aperture.
- ✔ Manual Exposure mode: Set a slower shutter speed and/or a wider aperture.

5 Confirm that the subject is within the flash shooting distance range (page 8-11), then fully depress the Shutter Release button to capture an image.

After shooting, check the Flash-Ready light again. If it blinks for a few seconds after shooting, the light may have been insufficient. Use the Histogram (page 9-5) to check the exposure. If necessary, move closer to the subject or select a wider aperture and shoot again.

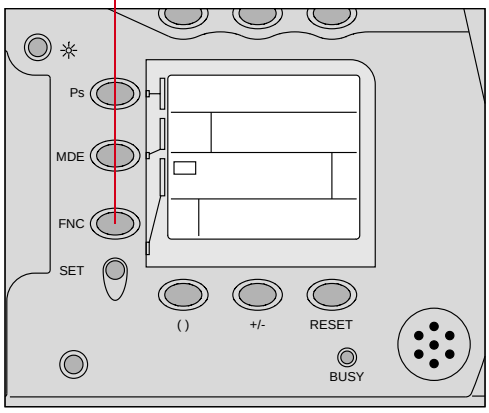
Using Flash Exposure Bracketing

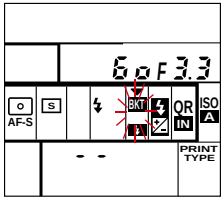
You can use Flash Exposure Bracketing to shoot the same subject at three different flash output levels with a varying flash output level compensation 0.5 EV or 1 EV.

Setting a compensation degree of 0.5 EV, for example, lets you capture three images, the first without compensation, the second with -0.5 EV compensation and the third with +0.5 EV compensation.

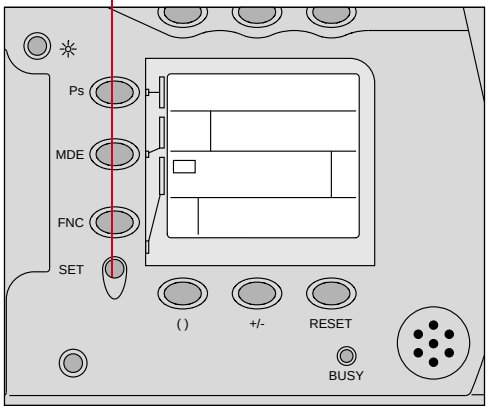
Tips

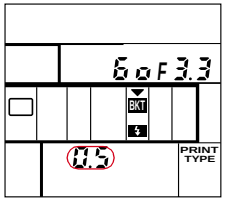
- ✔ Flash Exposure Bracketing can be set only when the built-in flash is activated or an attached Nikon Speedlight is turned On.
- ✔ When using Flash Exposure Bracketing with Exposure Compensation (page 7-3) or Flash Output Level Compensation, the compensated value is added. If exposure is compensated at +1 EV and you set Flash Exposure Bracketing for 0.5 EV, for example, the first shot will be taken with +1 EV compensation, the second shot with +0.5 EV compensation, and the third shot with +1.5 EV compensation. When combined with Exposure Compensation, background exposure will also vary.
- ✔ Auto Exposure Bracketing and Flash Exposure Bracketing cannot be set simultaneously.





1. Activate the built-in flash or turn on the attached Nikon Speedlight.
2. Press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel and BKT and ⚡ start blinking. Remove your finger from the FNC button so BKT and ⚡ stop blinking.





3 Press and hold the SET button and rotate the Main-Command dial until the desired compensation degree (**0.5** or **1.0**) appears.

4 Remove your finger from the SET button to complete the setting.

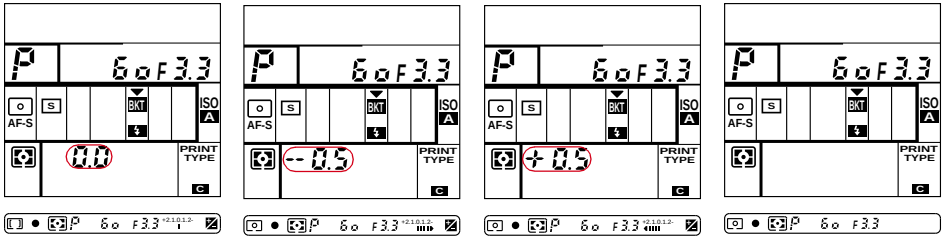
To cancel Flash Exposure Bracketing before or during the operation, turn the camera Off and then On again, or press and hold the Ps and RESET buttons for more than two seconds. Storing the built-in flash or turning an attached Nikon Speedlight Off also cancels Flash Exposure Bracketing.

5 Compose the picture, confirm the focus and exposure, then fully depress the Shutter Release button.

When using the built-in flash, you need to fully depress the Shutter Release button three times to capture the three images. This is required whether your camera's Drive mode is set for Single-Frame shooting or Continuous shooting.

After the three images have been captured, Flash Exposure Bracketing is automatically canceled.

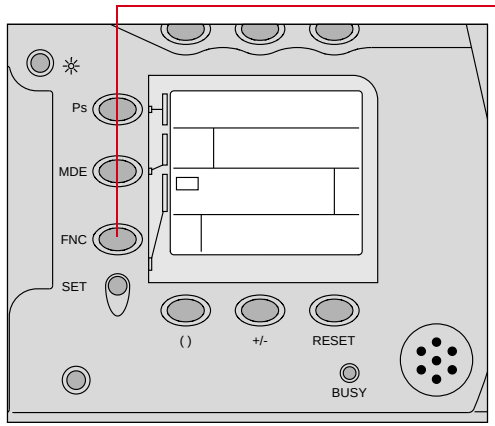
First shot is taken Second shot is taken Third shot is taken

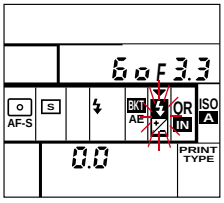


Using Flash Output Level Compensation

Use Flash Output Level Compensation to make a flash-illuminated subject brighter or darker.

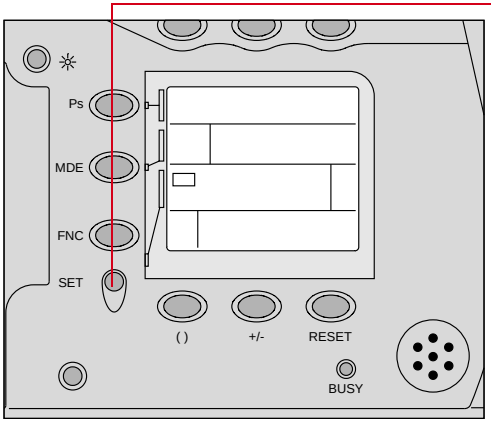
You can manually adjust the flash light output level using Flash Output Level Compensation. Using this function, you can adjust the light output level from -3 EV to +1 EV in 1/2 steps.



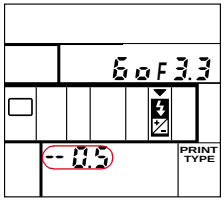


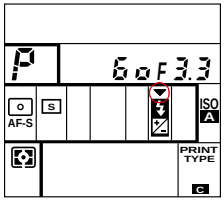
1. Press and hold the FNC button and rotate Main-Command dial until the Function Set indicator (▼) appears in the Camera Status LCD panel, and the symbol starts blinking.
2. Remove your finger from the FNC button.

   The symbol stops blinking.



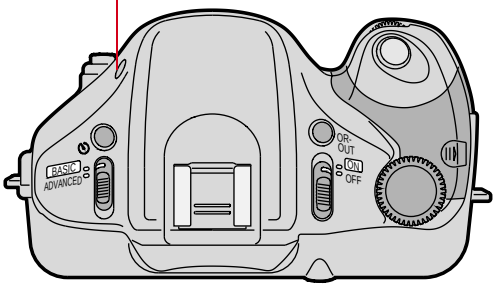
3 Press and hold the SET button and rotate the Main-Command dial until the desired compensation value appears in the Camera Status LCD panel.



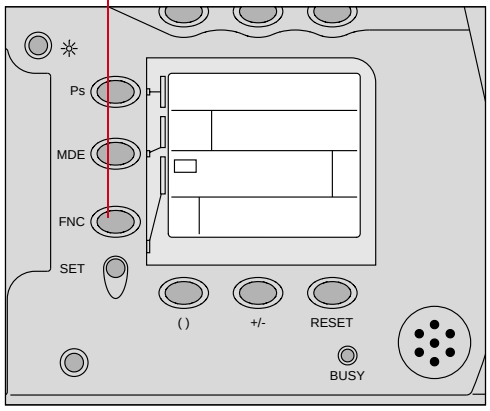


Once set, Flash Output Level Compensation remains fixed until reset. Although ▼ remains in the Camera Status LCD panel to indicate Exposure Compensation is On, the compensation value disappears when you release from the SET button.

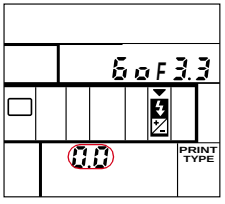
The ⚡ symbol disappears from the viewfinder when the exposure meter automatically turns Off.



4 Activate the built-in flash or turn the attached Nikon Speedlight On.



To confirm the compensation value in the Camera Status LCD panel, press and hold the FNC button and rotate the Main-Command dial until the Function Set indicator (▼) appears and ⚡ starts blinking. Press the SET button.



5 After shooting, reset the compensation amount to "***0.0***". Or, press and hold the Ps and RESET buttons for more than two seconds to cancel Flash Output Level Compensation. Switching the Exposure mode to Vari-Program or switching to a different Vari-Program option also cancels Flash Output Level Compensation.

Using Accessory Nikon Speedlights

When using a Nikon Speedlight, remove the accessory shoe cover.

The table below shows the available Flash modes for each Nikon Speedlight:

Speedlight Model	Connection	Available flash mode		
		TTL Auto[1]	Non-TTL Auto[2]	Manual[2]
SB-27, SB-26, SB-25, SB-24, SB-22, SB-21B[3], SB-20, SB-16B and SB-15	Direct	Yes	Yes	Yes
SB-23	Direct	Yes	No	Yes
SB-21A and SB-16A[3]	Via flash unit coupler AS-6	No	Yes	Yes
SB-11, SB-14 and SB-140[4]	Via TTL Remote Cord SC-23	Yes	Yes	Yes
	Via sensor remote cord SC-13 with sensor unit or sync cord with AS-15 coupled	No	Yes	Yes

1 In TTL Auto Flash mode, your camera performs automatic balanced Fill-Flash or Standard TTL flash. For TTL Auto Flash mode, usable ISO is 100 to 400.

2 Set the Exposure mode to Aperture-Priority Auto or Manual.

3 The difference between SB-21A and SB-21B, or between SB-16A and SB-16B, is the type of controller attached. (For details, see the specific Speedlight's manual).

4 Ultraviolet and infrared photography cannot be performed with a DCS 300 Series camera.

Tip

✔ When using Programmed Auto Exposure mode, only TTL Auto Flash mode can be used. If a Flash mode other than TTL Auto is set, turning the Speedlight On locks the shutter. In this case **FEE** and the Exposure mode indicator (**P** or **Ps**) blink in the Camera Status LCD panel, warning that the flash mode should be set to TTL auto.

What You Can Do With Nikon Speedlights

The main features and functions of Nikon Speedlights are listed in the table below:

Speedlight Model	Slow Sync[1]	Rear-Curtain Sync[2]	Repeating Flash[3]	Flash Output Level Compensation[4]	Flash Exposure Bracketing[5]	Red-Eye Reduction[6]
SB-27	Yes[7]	Yes[7]	No	Yes	Yes[8]	Yes
SB-26	Yes[7]	Yes	Yes	Yes	Yes[8]	Yes
SB-25	Yes[7]	Yes	Yes	Yes	Yes[8]	No
SB-24	Yes[7]	Yes	Yes	Yes	Yes[8]	No
SB-23, SB-22 and SB-20	Yes[7]	Yes[7]	No	No	Yes[8]	No
SB-16B, SB-15, SB-11, SB-14 or SB-140	Yes[7]	Yes[7]	No	No	Yes[8]	No
SB-21B	Yes[7]	Yes[7]	No	No	No	No

1 Refer to “Slow Sync” on page 8-5.
2 With SB-27, SB-26, SB-25 or SB-24, set the Speedlight’s Sync Mode selector to REAR, Normal Sync/Rear-Curtain Sync set on the camera is ignored. Refer to “Rear-Curtain Sync” on page 8-5.
3 See the Speedlight manual.
4 See the Speedlight manual.
5 Refer to “Using Flash Exposure Bracketing” on page 8-16.
6 Refer to “Red-Eye Reduction” on page 8-4.
7 Set on the camera
8 Set on the camera; in TTL Auto Flash Exposure mode only.

Notes on Flash Photography

✔ The available maximum aperture for each ISO in Auto-Multi Program is shown in the table below:

ISO Setting	Maximum Aperture
100	f4
200	f4.8
400 (DCS 315 only)	f5.6

If you are using a lens with a maximum aperture smaller than listed, the automatically controlled aperture range is from the lens's maximum aperture to its minimum aperture.

✔ For multiple flash photography, if the electric current in the synchro circuit exceeds a certain level, you may not be able to capture a second image. Ensure that the combined total of the coefficient (numbers shown in parentheses below) for all Speedlights used at any one time does not exceed 20 at 20°C/68°F or 13 at 40°C/104°F.

SB-27 (1)	SB-26 (1)	SB-25 (1)	SB-24 (1)
SB-23 (4)	SB-22 (6)	SB-21 (4)	SB-20 (9)
SB-19 (2)	SB-18 (16)	SB-17 (4)	SB-16 (4)
SB-15 (4)	SB-14 (1)	SB-12 (1)	SB-11 (1)

If you are unable to capture a second image, disconnect the master Speedlight from the camera or turn each Speedlight Off and On once. This resets the circuits so you can resume shooting.

This also applies when using any non-Nikon studio speedlight system.

✔ With the SB-26, when the wireless slave flash selector is set to D, the shutter speed is automatically set to 1/125 second.

☞ The camera will operate in Continuous Shooting Drive mode when a Nikon Speedlight is being used. If the Shutter Release button is pressed, the camera will not wait for the flash to recharge fully before starting another image capture

Flash Sync Terminal

The Flash Sync terminal is only available with the DCS 330 camera.

The DCS 330 camera has an external Flash Sync terminal located on the camera's left side. This terminal may also be referred to as a PC Sync jack or X-Terminal and it is compatible with the industry standard sync cords. It is used for triggering strobe units that are not mounted onto the camera's hot shoe, and it is rated for sync voltages up to a maximum of 30V DC.

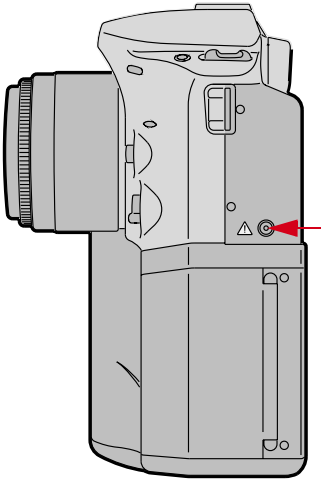
Do not use the Flash Sync terminal and the camera's hot shoe simultaneously.

☞ The Flash sync cord/connector set is not supplied with the camera.

WARNINGS: ⚠

The Flash Sync terminal is for a flash sync cable system ONLY! DO NOT CONNECT AC MAIN POWER TO THIS CONNECTOR! Doing so can create a hazardous condition.

Flashes with a trigger circuit voltage greater than 30V DC will damage your camera and can be hazardous.



The following restrictions apply when the Flash Sync terminal is in use:

- ✔ TTL automatic flash exposure control, automatic flash synchronization of the camera shutter speed, and the viewfinder's flash ready-light indicator do not work.
- ✔ The only Flash modes possible are Manual Flash Exposure control and Non-TTL Automatic Flash Exposure control.
- ✔ The camera's shutter speed for flash sync cannot be set automatically. Set the shutter speed manually to a slower speed than the synchronization speed (maximum speed available is 1/180 second).
- ✔ The flash ready-light indicator does not function; confirm that the flash is ready with the strobe's own ready-light indication.

Working with Images on the Camera

Once you have captured images, you can review them on your camera and view image information such as areas of overexposure and histogram information. In addition, you can tag images as a selection mechanism for a variety of functions on the camera and in the Kodak Software. You can also record sound files to be associated with images, and delete unwanted images to free up space on a PC Card.

Image Review Mode

You can view images on your camera in Single, Four, and Nine Image Review mode.

Single Image Review mode

Four Image Review mode

Nine Image Review mode

☞ You can also view images in Single Image Review mode when the Status screen is displayed on Image LCD panel. Refer to “Viewing Status Information” on page 9-8.

Selecting a Review Mode

1. Insert a PC Card if you have not already done so.
2. Press the MENU button to turn the Image LCD panel On.
3. Press and hold the MENU button and rotate the Main-Command dial to highlight the icon for the desired viewing mode (Single, Four, or Nine Image Review mode or S for the Status screen).
4. Release the MENU button.

   One, four, or nine images are displayed.

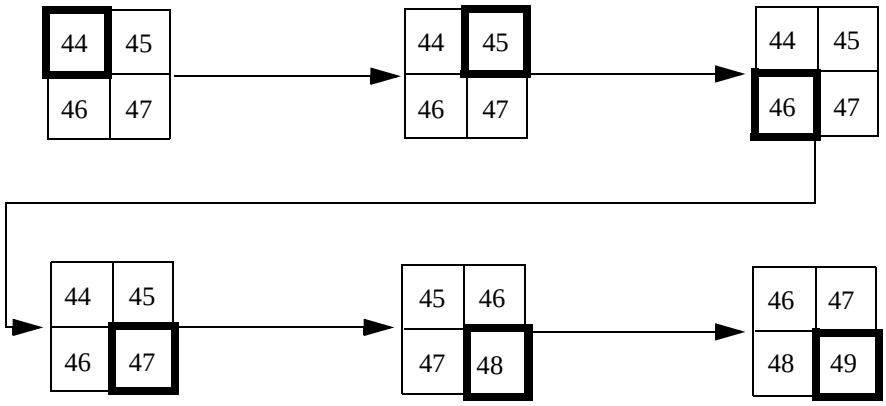
Reviewing Images

You can review images one folder at a time.

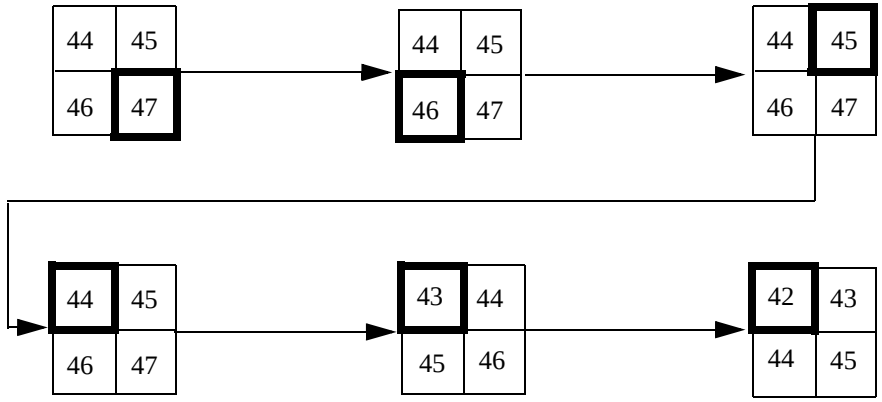
1. Select the desired folder.
2. Select the desired Image Review mode.
3. Press and hold the SELECT button and turn the Main-Command dial clockwise or counter-clockwise to scroll through the images in the currently selected folder.

The following examples show how images are selected when you rotate the Main-Command dial clockwise and counter-clockwise in Four Image Review mode:

Review sequence with counter-clockwise rotation of the Main Command dial



Review sequence with clockwise rotation of the Main Command dial



Selecting images in Nine Image Review mode is similar. If you change from Four or Nine Image Review mode, the selected image will be the image displayed in Single Image Review mode.

Adjusting the Display Contrast

You can change the contrast of the images on the Image LCD panel.

Changing the contrast affects only the view of the images on the Image LCD panel, not the images themselves.

Once you change the contrast setting, the change will be maintained.

1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Display Contrast icon.
3. Release the MENU button.

   A gray scale bar appears at the side of the image and a slider appears across the bottom.
4. Press and hold the SELECT button and turn the Main-Command dial clockwise or counter-clockwise, moving the slider until the desired contrast is achieved.

   The displayed image changes to reflect the contrast change, as does the gray scale bar.

☞ With proper contrast, the gray scale bar will run from black to white, with clearly defined steps in between.

Viewing Overexposure Areas and Histogram Information

There are two display options available on the Image LCD panel: Highlight and Histogram/Info.

The Highlight feature causes overexposed areas of the image to blink. This feature helps you immediately determine how much of the image (or what area of a scene) was overexposed. The feature also helps you to evaluate whether the desired scene area was correctly exposed, even though less desirable areas may have been overexposed.

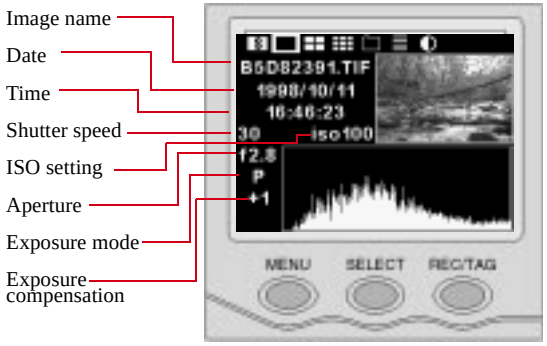
The Histogram displays a graphic representation of the luminance level of all pixels across the image. This is sometimes referred to as tonal distribution. The number of pixels at each luminance level is plotted and displayed beneath a small representation of the image. This information can help you determine whether the image, on average, was correctly exposed or met the overall exposure curve desired.

1. Press the MENU button to turn the Image LCD panel On.
2. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main menu icon.
3. Release the MENU button.

   The Main menu appears.
4. Press and hold the SELECT button and rotate the Main-Command dial to highlight Display Options.
5. Release the SELECT button.

   The Display Options menu appears.
6. Press and hold the SELECT button and rotate the Main-Command dial to highlight the desired option.

   A checkmark next to an option indicates that the option is On.



If you turn Highlight On, overexposed areas of the image blink.

If you turned Histogram/Info On, the Histogram and image information screen appears. A typical screen is shown.

- The Histogram only appears in Single Image Review mode.

The Histogram shows the range and distribution of tonal values for an image. It displays the number of occurrences of each pixel code value, and can be used to assess an image's brightness and contrast levels. Pixel code values represent the relative value of light intensities in a scene. They range from 0 (darkest elements in a scene) to 255 (brightest elements in a scene). For a high contrast image, the Histogram will include almost the entire range of pixel code values. For a low contrast image, the Histogram will include a small range of pixel code values.

To judge exposure, use the Histogram, not the image displayed on the Image LCD panel.

- If the Histogram/Info Display Option is On, quickly press and release the SELECT button to toggle between the Histogram and Single Image Review mode.

Value	Description
P	Auto-Multi Program
S	Shutter-Priority Auto Exposure mode
A	Aperture-Priority Auto Exposure mode
M	Manual Exposure mode
PRT	Portrait Program
HYP	Hyperfocal Program
LAN	Landscape Program
CLS	Close-Up Program
SPR	Sport Program
SIL	Silhouette Program

There are several possible values for Exposure mode (shown in the table). The last six values refer to Vari-Program options. Refer to “Exposure Mode” on page 6-10.

Occasionally the camera cannot obtain exposure information about an image. In this case, **??** is displayed instead of the values at the lower left of the Histogram screen. The ISO value is always displayed and the actual image is unaffected by the missing information.

Selecting an Image

You need to select an image if you want to tag it or record a sound file. When you capture an image, it is automatically selected. If you need a different image, you must select it.

1. Press and hold the SELECT button and rotate the Main-Command dial until one of following occurs:

   Single Image Review mode: the image that you wish to select is displayed.

   Four or Nine Image Review mode: the selection rectangle is displayed over the image that you wish to select.

2. Release the SELECT button.

☛ You can also select an image when the Status screen is displayed.

Viewing Status Information

You can view status information on the currently selected image.

1. Press and hold the MENU button and rotate the Main-Command dial to highlight the Status icon.
2. Release the MENU button.

   The Status screen appears.

☛ Quickly press and release the SELECT button to toggle between the Status screen and Single Image Review mode.

Tagging an Image

You can tag one or more images as a selection mechanism for operations on the camera or in the Kodak Software. On the camera, you can specify that the tagged images NOT be deleted. In the Kodak Software you can select tagged (or untagged) images and perform a variety of operations. Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.

1. Press the MENU button to turn the Image LCD panel On.
2. Select the folder containing the images you wish to tag.
3. Select any Image Review mode.
4. Select an image.
5. Press and quickly release the REC/TAG button.

   If you hold the REC/TAG button for more than one second, you will activate the microphone used for attaching sound files to images.

   A Tag icon is displayed at the top right of the Menu Bar.
6. Repeat Steps 2 - 5 as necessary.

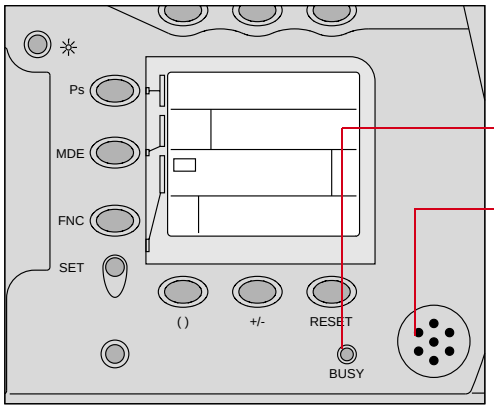
   To untag a previously tagged image, select the tagged image as described above, then quickly press and release the REC/TAG button.

Associating Sound Files With Images

You can attach one or more sound files to the current image, either immediately after you capture the image, or later when you review it (page 9-2). If you later use the Kodak Software to copy or delete the image, the sound file will also be copied or deleted. (If you copy or delete images without using the Kodak Software, you must also copy or delete the sound (.WAV) files.

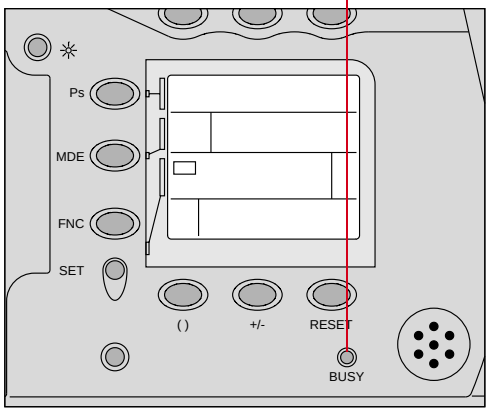
You can play the sound files using the Kodak Software or other software designed for sound (.wav) files. Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.

☞ Keep in mind that sound files do use space on a PC Card.



1. Capture an image or select the image to which you wish to attach a sound file.
2. Press and hold the REC/TAG button.
3. Wait for the PC Card Busy/ Record LED to turn green.
4. Speak into the microphone while continuing to press the REC/TAG button.
5. Release the REC/TAG button when finished.

A Sound icon appears on the Menu bar whenever the currently selected image has an associated sound file.



The PC Card Busy/Record LED turns green while you are recording sound.

You can repeat the process if you wish to associate additional sound files with the image.

Deleting Images

You can delete images from the PC Card to make space for additional images. If there are sound files associated with an image, they too will be deleted.

Deleting One Image

1. Press the MENU button to turn the Image LCD panel On.
2. Select the folder containing the image that you want to delete.
3. Select the image that you want to delete.
4. Press and hold the MENU button and the SELECT button at the same time.

   The Delete Image screen appears.
5. Release the Menu and SELECT buttons.
6. Press the SELECT button and rotate the Main-Command dial to highlight Yes, No, or Done.

   If you choose Yes, the current image is deleted and the next image appears.

   If you choose No, the current image is not deleted and the next image appears.

   If you choose Done, the current image is not deleted and you return to the previous screen.

Deleting More Than One Image

You can delete all images in the current folder, all untagged images in the current folder, all images on a PC Card, or all untagged images on a card.

1. Press the MENU button to turn the Image LCD panel On.
2. If you plan to delete untagged images, tag any images that you want to keep. Refer to “Tagging an Image” on page 9-9.
3. Press and hold the MENU button and rotate the Main-Command dial to highlight the Main menu icon.
4. Release the MENU button.

   The Main menu appears.
5. Press and hold the SELECT button and rotate the Main-Command dial to highlight Delete Images.
6. Release the SELECT button.

   The Delete Images menu appears.
7. Press and hold the SELECT button and rotate the Main-Command dial to highlight the desired option.
8. Release the SELECT button.

   A confirmation screen appears.
9. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes or No.
10. Release the SELECT button.

If you chose Yes, this screen appears giving you the opportunity to possibly cancel some of the deletions.

When finished, a screen like the one at the left tells you how many images were deleted.

IMPORTANT:

- ✔ *When you delete all images or all untagged images on a card, images in other folders will also be deleted. Be certain that you don't need any of them.*

Connecting your Camera to a Computer

There are two ways to prepare for accessing camera images from your computer:

- ✔ Connect the camera to the computer using an IEEE 1394 connection.
- ✔ Remove the PC Card from the camera and insert it into a PC Card reader.

Once you have done one of the above, you can access camera images from your computer. You will need to use Kodak Software to acquire images that were not processed on the camera. The Kodak Software, installer software for Macintosh and Windows, and the KODAK PROFESSIONAL DCS Host Software User's Manual are supplied separately on the DCS Host Software CD included with your camera.

☞ Use Adobe Acrobat Reader (included on the CD) to view or print the manual.

Images processed on the camera can be accessed by other applications without being acquired by the Kodak Software. Refer to "Setting Processing Options" on page 4-11.

Advantages to Using an IEEE 1394 Connection

- ✔ You can capture images, then view them on your computer within seconds.
- ✔ You can update the firmware on your camera from your computer.

Advantages to Using a Card Reader

- ✔ You do not need a camera present while you are accessing images. (Someone else can use the camera while you work with the images.)
- ✔ Some Notebook PC's don't have IEEE 1394 connections but they do have PC Card readers.

To Connect Your Camera to a Computer

Connect your camera to the computer using an IEEE 1394 cable. This cable makes it possible for images to be moved from the camera to the computer at a very rapid rate. It is easy to use—you can plug either end into the camera or the computer, and you don't need to turn the computer or the camera Off before connecting or disconnecting.

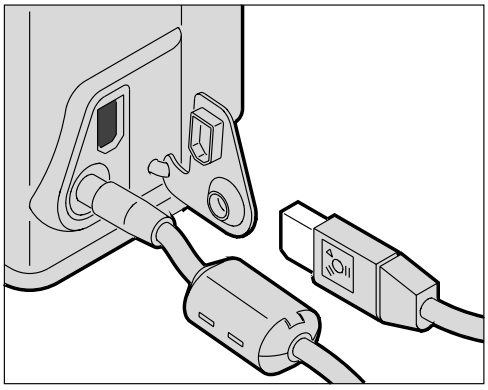
You must use an IEEE 1394 cable and adapter card.

1 Insert the battery tray or hook up the Kodak-specified AC adapter. Refer to "Inserting Batteries" on page 2-4 or "Connecting the Kodak-specified AC adapter" on page 2-9.

IMPORTANT:

While it is not necessary to use the Kodak-specified AC adapter, it is highly recommended as insurance against possible loss of data if the battery should lose its charge.

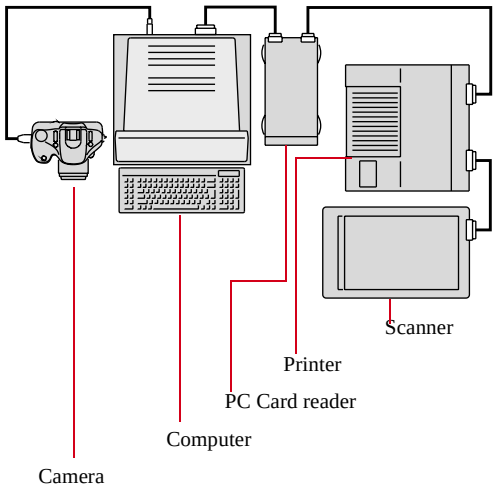
2 Install the Kodak Software for Macintosh or PC if you have not already done so. Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.



3 Connect either end of the IEEE 1394 cable to the camera port.

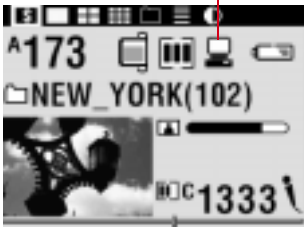
4 Connect the other end of the cable to any available port on the IEEE 1394 adapter card in your computer.

☞ The adapter card may have multiple ports.



- You may connect more than one camera or other 1394 devices to the card as long as you avoid a closed loop configuration. (The drawing is an example of an acceptable configuration.)
- The camera's IEEE 1394 port does not support a second pass-through connector, and is meant to be the last device on the "daisy chain."

You are now ready to access your camera from the computer. (Refer to the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.)



The Host Computer Connected icon on the Status screen appears when a valid cable connection is made. It flashes when a host computer application (such as the Kodak Software) is running.

Disconnecting your Camera From the Computer

IMPORTANT:

Close the Kodak Software Image window before you disconnect the camera from the computer. Otherwise, you may lose data from the PC Card.

You can connect or disconnect the camera without turning the camera or the computer Off.

1. If the Kodak Software is running, click the Done button in the Kodak Software Image window.
2. Unplug the cable.

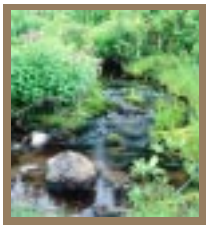
Using the Card Reader

If your computer has a card reader, you can access images by placing a PC Card containing camera images into the reader. If you have a new card reader, install it using the instructions accompanying the reader.

Refer to the computer documentation on the use of a card reader.

1. Remove the PC Card from your camera. Refer to “Removing a PC Card” on page 4-3.
2. Insert the PC Card into the card reader on your computer.

   Some computer systems (for example, Windows NT 4.0) require you to reboot each time you insert a PC Card into the reader.
3. You can now access images on the PC Card using the Kodak Software.9 Refer to the KODAK PROFESSIONAL DCD Host Software User’s Manual on the DCS Host Software CD included with your camera.)
4. Macintosh only: Drag the PC Card icon to the trash prior to ejecting the card from the card reader.



Camera Care

This chapter discusses the cleaning and care of your camera. It also provides instructions for loading new firmware.

Handling

With careful handling, your camera should produce images of the highest quality for years to come.

Tips

- ✔ Do not drop your camera or subject it to shock. While the camera has been designed for durability, it is a precision instrument and should be handled with care.
- ✔ Keep your camera out of salt spray and protect it from excessive moisture.
- ✔ Do not touch the camera's electronic contacts with your fingers. Doing so can hasten corrosion and affect proper camera operation.
- ✔ Do not touch the camera's reflex mirror or focusing screen.
- ✔ Imager Clean is a delicate procedure. Refer to "Cleaning the Imager" on page 11-9.
- ✔ After removing a lens from the camera, place the camera body cap over the lens mounting ring.
- ✔ Keep the lens cover in place when the camera is not in use.
- ✔ Condensation is a problem when bringing cold equipment into a warm place. If the autofocus optics cloud over, accuracy may be seriously affected. Before entering a warm place, put equipment in a plastic bag so condensation forms on the outside of the bag.
- ✔ Do not leave the camera in an excessively hot place.
- ✔ Do not lubricate the camera.

Cleaning the Camera

1. Turn the camera Off.
2. Disconnect the camera from the AC adapter and from the computer if it is connected.
3. Using a clean, damp cloth, clean only the outside encasement, the Image LCD panel, the Camera Status LCD panel, and the viewfinder.

IMPORTANT:

Do not use liquid cleaners or aerosol cleaners on the outside of the camera.

4. To remove dust from the lens, mirror, or focusing screen, gently blow the dust away using a commercially available bulb-type blower. If further cleaning is necessary, consult your nearest service center.

IMPORTANT:

Avoid directly touching any of these surfaces. Do not wipe the camera body or lens with any type of cleaner containing organic solvents.

5. Clean the viewfinder eyepiece with a soft, clean cloth. DO NOT use alcohol.
6. The shutter curtain can be easily damaged if touched. To remove dust from the shutter curtain or surrounding area, use only a commercially available bulb-type blower.

CAUTIONS: ⚠

Be careful not to blow air onto the curtain too strongly as this could deform or damage the curtain. Aerosol spray dust removers should not be used near the shutter curtain.

A spray gun-type blower may damage the optical glass if used to clean the lens, especially if ED glass is used for the front lens element. To avoid damage, hold the blower upright with its nozzle more than 30cm from the lens surface, and keep the nozzle moving so the stream of air is not concentrated in one spot.

Antialiasing Filter (DCS 330 Only)

The DCS 330 contains an antialiasing filter which helps prevent aliasing at certain focal distances. It may be necessary to remove the antialiasing filter for cleaning. While it is not essential, you can wear lint-free, static-free gloves, available from your camera dealer.

CAUTION: ⚠

If you break the glass on the antialiasing filter while it is in the camera, call your service representative. The broken glass can damage the imager and other parts of the camera.

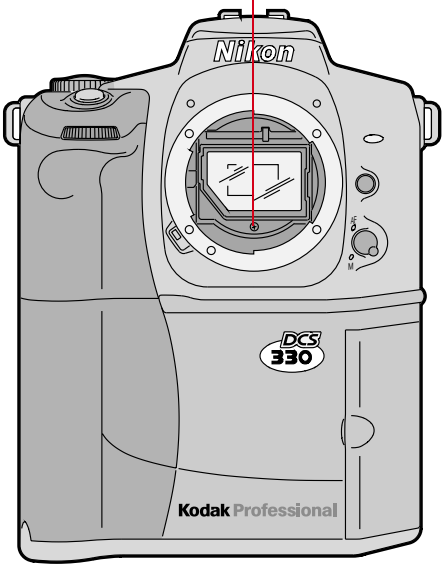
DCS 330: Do not attempt to install an IX-Nikkor lens when the antialiasing filter is in place. These lenses can break the filter.

Removing, Cleaning, and Re-installing the Antialiasing Filter

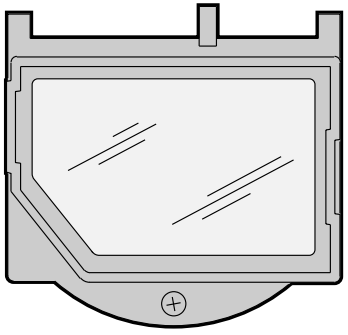
1. Turn the camera Off.
2. Remove the lens from the camera. Refer to “Removing the Lens” on page 1-22.

CAUTION: ⚠

Be very careful when removing the filter, as it is fragile.



3 Carefully unscrew the screw at the bottom of the antialiasing filter bracket using a jewelers screwdriver (Phillips #00).



4 Carefully remove the filter bracket from the camera.

5 Gently blow off the dust using commercially available “canned air.” If the antialiasing filter is still dirty, please contact your dealer or service representative.

6 To re-install: place the filter bracket tabs into the upper two notches on the camera lens opening, and secure the screw at the bottom.

7 Replace the lens.

Refer to “Mounting the Lens” on page 1-19.

If you remove the antialiasing filter and don’t re-install it, you should store it in a clean, dust-free space.

Checking and Cleaning the Imager

The imager is the camera component that records light when you capture an image. If it gets dirty, the quality of your images can be affected. Even though it is located inside the camera, it is still possible for the imager to become dirty.

To determine whether the imager needs cleaning:

- ✔ Capture a test image of a flat uniform scene, and examine it for imperfections that indicate dirt on the imager.
- ✔ Access the imager and visually inspect it for dirt.

Capturing and Examining an Image

1. Connect the camera to your computer. Refer to “To Connect Your Camera to a Computer” on page 10-2.
2. Capture an image of a plain white object, such as a clean white wall.
3. Examine the image on the computer monitor. Imperfections in the image, such as dark clusters or streaks, may indicate a dirty imager.

1. Turn the camera Off.
2. Remove the lens from the camera.
3. Remove the antialiasing filter (page 11-3), if necessary.
4. If a full battery tray is not in the camera, insert one now.

   Refer to “Inserting Batteries” on page 2-4.
5. If the camera is not connected to the Kodak-specified AC adapter, connect it now.

   Refer to “Connecting the Kodak-specified AC adapter” on page 2-9.

CAUTION: ⚠

It is necessary to use the batteries as well as the Kodak-specified AC adapter as a safeguard to prevent the shutter closing unexpectedly and being ruined.

6. Turn the camera On.

7 Press the MENU button to turn the Image LCD panel On.

8 Press and hold the MENU button and rotate the Main-Command Dial to highlight the Main Menu icon.

9 Release the MENU button.

The Main menu appears.

10 Press and hold the SELECT button and rotate the Main-Command dial to highlight the Imager Clean choice.

11 Release the SELECT button.

If there are no batteries in the camera or the camera is not connected to an AC adapter, a message to that effect will appear. Return to Step 3.

If the batteries and AC adapter are in place, the Open shutter screen appears in the Image LCD panel.

12 Press and hold the SELECT button and rotate the Main-Command dial to highlight OK to proceed, or highlight Cancel to cancel the process.

13 Release the SELECT button

If you chose Cancel, you can turn the camera Off and replace the lens.

If you chose OK, the mirror lifts and the shutter opens.

The imager is visible through the lens mounting flange.

CAUTION: ⚠

Do not remove the power sources while the mirror is raised.

The Close Shutter screen appears in the Image LCD panel.

14 Hold the camera so that light reflects off the imager. Visually inspect the imager for grease, fingerprints, lint, or other dirt.

If the imager is dirty, you can clean and reassemble the camera. If it is clean, you can reassemble the camera without cleaning. Both procedures are described on the next page.

Cleaning the Imager

If the imager is dirty, gently blow off the dust using commercially available “canned air.” If the imager is still dirty, contact your dealer or service representative.

Reassembling the Camera

Reassemble your camera after inspecting or cleaning the imager.

1. Press and hold the SELECT button and rotate the Main-Command dial to highlight Yes in the Close shutter screen.

   The mirror lowers and the shutter closes.
2. Turn the camera Off.
3. Replace the antialiasing filter (page 11-3), if necessary.
4. Replace the lens.
5. Turn the camera On.
6. Capture an image of a plain white object and verify that there are no imperfections.

Storing the Camera

- ✔ Wrap the camera in a clean, soft cloth and store it in a well-ventilated, cool, dry, dust-free place.
- ✔ Keep the camera out of direct sunlight, and away from “hot spots” such as the trunk or rear window shelf of a car.
- ✔ Avoid places where chemical agents such as moth balls are used, and use a desiccant when there is extreme humidity.
- ✔ To prevent corrosion, avoid storing the camera in a laboratory or other location where chemicals are used.
- ✔ Do not store the camera in a drawer or other non-ventilated place.
- ✔ Remove the batteries if you do not expect to use the camera for several days. (A minute amount of battery power is used even when the Power switch is set to Off and the batteries will be affected after several days of storage.)

You should also store the original packaging in case you need to return the camera for repair.

After lengthy storage, carefully check the camera’s operation. When you have not used the camera for a long time, or before an important trip or shooting assignment, we recommend that you have it thoroughly tested at an authorized service center.

Loading Camera Firmware

Firmware is the software program which runs within the camera and controls its operation. As changes are made to the firmware, new versions may become available. You should occasionally check the Kodak web site (http://www.kodak.com) to see if there is a new firmware version. You can download the firmware from the Kodak WWW site or obtain it from your camera dealer.

There are two ways to load firmware:

- ✔ Using the Kodak Software. This method is described in the KODAK PROFESSIONAL DCS Host Software User's Manual on the DCS Host Software CD included with your camera.
- ✔ Copying from the PC Card (see below).

1. Download or copy the firmware files to your computer.
2. Install the firmware on your computer using the installation software which accompanied the firmware.
3. Connect your camera to a Kodak-specified AC adapter and/or use fresh batteries.

☞ Your camera can load firmware while it is powered by either the AC adapter or batteries, but we recommend that both power sources be used.

IMPORTANT:

Loss of power could corrupt the firmware.

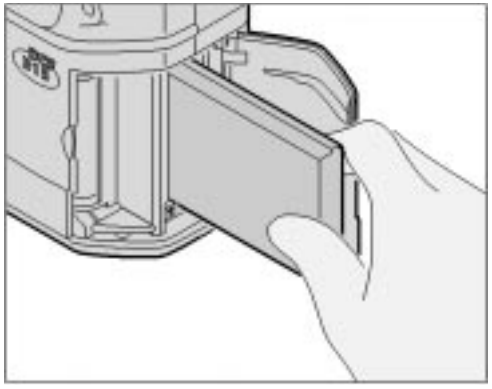
4 Insert a PC Card into the card reader on your computer.

5 On your computer, copy the firmware file (dcs3xx.bin) to the root directory of a PC Card. (Do not copy the file to a folder on the card.)

On Windows systems, the firmware file will have been installed in \TWAIN_32\Kodak-dcs in your Windows directory.

On Macintosh systems, it will have been installed in the DCS Plugin directory in your root directory.

6 Insert the PC Card into your camera.



7 Press the MENU button to turn the Image LCD panel On.

8 Press and hold the MENU button and rotate the Main-Command dial to highlight the Main Menu icon.

9 Release the MENU button.

The Main Menu appears.

10 Press and hold the SELECT button and rotate the Main-Command dial to highlight Firmware.

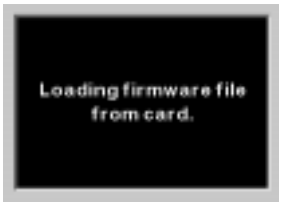
11 Release the SELECT button.

The Firmware screen appears.

12 Press and hold the SELECT button and rotate the Main-Command dial to highlight your choice.

13 Release the SELECT button.

If you choose Version, the firmware version appears.



If you choose Update from card, the screen at the left appears briefly.

This screen then appears.

14 Choose OK or Cancel.

If you choose Cancel, the firmware will not be updated.

If you choose OK, the Progress screen appears.

If there is a problem loading the firmware, an error message will be displayed.

When the firmware has been successfully loaded, this screen appears.

15 Choose OK.

The Main Menu appears.

☞ To revert to an older version of firmware, you must repeat steps 10 - 14.

Warranty

CAREFULLY READ THE FOLLOWING WARRANTY TERMS AND CONDITIONS BEFORE USING YOUR CAMERA. USE OF YOUR CAMERA INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE WITH THEM, PROMPLTY RETURN THE CAMERA, UNUSED, ALONG WITH THE ACCOMPANYING MATERIALS, IN THE ORIGINAL PACKAGING.

WARRANTY

KODAK PROFESSIONAL DCS 300 Series Digital Camera

THIS WARRANTY APPLIES ONLY TO EQUIPMENT PURCHASED IN THE UNITED STATES.

Warranty Time Period

Kodak warrants your DCS 300 Series Digital Camera to be free from defects in material and workmanship for 1 year or 60,000 shutter activations from the day of purchase (whichever comes first).

Warranty Repair Coverage

If this equipment does not function properly during the warranty period due to defects in material or workmanship, Kodak will, at its option, either repair or replace the equipment without charge, subject to the conditions and limitations stated herein. Such repair service will include all labor as well as any necessary adjustments and/or replacement parts.

If replacement parts are used in making repairs, these parts may be remanufactured, or may contain remanufactured materials. If it is necessary to replace the entire system, it may be replaced with a remanufactured system. Repair or replacement carries a 30 day warranty effective at the time of service problem resolution. This warranty will not extend the original warranty period, and in the case of parts replacement, will only apply to parts and labor performed to repair the equipment.

Limitations

REPAIR OR REPLACEMENT WITHOUT CHARGE IS KODAK'S ONLY OBLIGATION UNDER THIS WARRANTY.

Warranty service will not be provided without dated proof of purchase. Please return the Warranty Registration card within 30 days of purchase.

As a condition of warranty service, before sending in your equipment to a Kodak authorized service center for repair, you must first contact a Kodak representative for return authorization and instructions.

Should you need to return equipment to Kodak, Kodak is not responsible for the loss or damage of equipment while in transport to a Kodak authorized service center. You may, at your option, choose to insure equipment for loss or damage with the carrier of your choice.

This warranty becomes null and void if, during shipment, you fail to pack your DCS 300 Series Digital Camera in a manner consistent with the enclosed repacking instructions.

This warranty does not cover the following:

- ✔ circumstances beyond Kodak's control
- ✔ service or parts to correct problems resulting from the use of attachments, accessories or alterations not marketed by Kodak
- ✔ unauthorized modifications or service
- ✔ misuse
- ✔ abuse
- ✔ failure to follow Kodak's operating, maintenance, or repacking instructions
- ✔ failure to use Kodak supplied items (such as cables).

KODAK MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

KODAK WILL NOT BE RESPONSIBLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES RESULTING FROM THE PURCHASE, USE, OR IMPROPER FUNCTIONING OF THIS EQUIPMENT EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE NEGLIGENCE OR OTHER FAULT OF KODAK. SUCH DAMAGES FOR WHICH KODAK WILL NOT BE RESPONSIBLE INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF REVENUE OR PROFIT, DOWNTIME COSTS, LOSS OF USE OF YOUR CAMERA, COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES, OR SERVICES, OR CLAIMS OF YOUR CUSTOMERS FOR SUCH DAMAGES.

Outside the United States

In countries other than the United States, warranty terms may be different. Unless a specific Kodak warranty is communicated to the purchaser in writing by Kodak, no warranty or liability exists even though defect, damage or loss may be by negligence or other act of Kodak.

How to Obtain Service

In the United States, call 1-800-23-KODAK (1-800-235-6325).

In Canada, call 1-800-GO-KODAK (1-800-465-6325).

In other countries, call your nearest Kodak representative.

If service is required, your Kodak representative will instruct you to return the unit to the nearest service center for repair and will issue a return authorization number.

When returning a DCS 300 Series Digital Camera for repair, the unit should be packed in its original packing materials. The problem report form, located at the back of this manual, should also be completed and enclosed with your camera. If the original packaging has been discarded or is not available, packing will be the purchaser's responsibility.

Product Support Options

During the warranty period for the DCS 300 Series Digital Camera, you are entitled to product support for both hardware and software, provided your camera is registered with Eastman Kodak Company. You may register with Eastman Kodak via mail, fax, or through Kodak's WWW (World Wide Web) site (http://www.kodak.com).

Support is provided through a variety of options:

1. Technical support through the WWW site: (http://www.kodak.com/:
   - ✔ Support includes FAQs (Frequently Asked Questions), downloadable software updates, and technical topic articles for reading and downloading.
2. FaxBack Documents on a variety of subjects. The FaxBack system is available at the following phone numbers:

North America	1-800-508-1531

3. Authorized Dealers:

   Contact your authorized Kodak Professional dealer for help with camera operation and connection to your computer. Many dealers can also provide training for your graphics application software, integration consulting, and supporting equipment such as *Kodak Digital Science*™ 8650 PS dye sublimation printers. Authorized dealers can also provide help in purchasing a service maintenance agreement.

4. Telephone Support:

   Currently, telephone support is provided without charge during your warranty period only. Your camera must be registered with Kodak to qualify for no-charge support. You will be asked to provide the serial number of your camera and proof of purchase may be requested to verify the current status of your warranty. Cameras found to be out of warranty will require a credit card payment for each call incident. There is no charge to register your camera with Eastman Kodak Company.

United States:	CAll 1-800-23-KODAK (1-800-235-6325)
Canada	Call 1-800-GO-KODAK (1-800-465-6325)
Outside United States:	Contact your local Kodak service representative

5 Out-of-Warranty Support Options

There will be a charge for call incidents if you wish to speak to a Kodak support representative. A call incident is defined as only those issues raised during the first telephone contact. Follow-up telephone calls by Kodak's representative, and callbacks to Kodak's Support Center to resolve the call incident will not be charged, provided a valid, active call number is provided. Calls to report bugs or anomalies will not include charges. Calls to arrange for service will have the charges cancelled or applied as a credit against the repair estimate or invoice.

Service maintenance agreements, which cover the repair and support of the DCS camera and software are available. Please contact the regional Service Marketing group at:

North America 1-800-645-6325

No-charge options include:

- FaxBack system documents
- KODAK PROFESSIONAL World Wide Web site: http://www.kodak.com/

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United States:1-800-23-KODAK (1-800-235-6325).
Canada:1-800-GO-KODAK (1-800-465-6325).
Other countries: all your nearest Kodak representative.

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Appendix A - Specifications

Type of camera	Two models are available: DCS 315 and DCS 330. Both are integral-motor autofocus 35 mm single-lens reflex
Imager size	DCS 315: 1,532,160 million pixels DCS 330: 3,020,032 million pixels
Lens mount	Nikon F mount
Lens	Refer to Appendix C for a list of compatible lenses
Focus area	Wide and Spot selectable
Focus mode	Autofocus and Manual with electronic rangefinder
Operation mode	BASIC and ADVANCED
Focus mode	Single Servo AF, Continuous Servo AF, and Manual with electronic rangefinder
Focus Tracking	Automatically activated when subject moves in Continuous Servo AF mode
Autofocus detection system	Nikon CAM274 autofocus module
Autofocus detection range	Approximately EV 0 to EV +20 (at ISO 200)
Autofocus lock	Possible once stationary subject is in focus in Single Servo autofocus
Electronic rangefinder	Available in Manual Focus mode with lenses having a maximum aperture of f5.6 or faster
Exposure Metering	Three built-in exposure meters —3D Matrix, Center-Weighted, and Spot
Metering range at (ISO 200 with f1.4 lens)	EV 0 to EV 20 in 3D Matrix (DCS 330 only) and Center-Weighted, EV 4 to EV 20 in Spot
Exposure meter duration	Remains on for 8 seconds after the camera is turned On or after you remove your finger from the Shutter Release button
Exposure modes	Programmed Auto (Auto-Multi Program and Vari-Program), Shutter-Priority Auto, Aperture-Priority Auto, and Manual; only Auto-Multi Program and Vari-Program are selectable in BASIC mode
Programmed Auto Exposure control	Camera sets both shutter speed and lens aperture automatically; Flexible Program is possible
Shutter-Priority Auto Exposure control	Aperture automatically selected to match manually set shutter speed
Aperture-Priority Auto Exposure control	Shutter speed automatically selected to match manually set aperture
Manual Exposure control	Both aperture and shutter speed are set manually
Vari-Program	Six built-in types: Portrait, Hyperfocal, Landscape, Close-up, Sport, and Silhouette Programs. Flexible Program is possible

Quick Recall function	Using the QR-OUT button, user-selected or original camera settings can be recalled; up to three settings can be memorized
Exposure compensation	With the Exposure Compensation button; ±5 EV range, in 1/2 EV steps
Auto exposure lock	By pressing the AE-L button while meter is on
Exposure bracketing	Three frames in 1/2 or 1 EV steps
Shutter speeds	Lithium niobate oscillator-controlled speeds from 1/8000 to 30 seconds (in 1/2 stop increments)
Viewfinder	Fixed eye level pentaprism high-eyepoint type
Eyepoint	Approximately 20 mm
Focusing screen	Nikon new B-type BriteView screen III; fixed
Viewfinder information	LCD shows Metering system, Focus indication, Exposure mode, Shutter speed, Aperture, Electronic Analog display, Exposure Compensation value, Flash/Exposure Compensation mark; a Flash Ready LED is also shown
Camera Status LCD panel information	Vari-Program, Shutter speed, Aperture, Exposure mode, Flexible Program, Focus area, AF mode, Drive mode, Flash Sync mode, Exposure/Flash Bracketing mark, Exposure Compensation, Compensation value, and Self-timer.
Image LCD panel information	PC Card inserted, images available, folder name, number of images in folder, thumbnail of current image, location of current image in folder, file type, host PC connected, battery level, background image processing status, recording status, current image number, file type of current image
Camera Status LCD panel illumination	Push the LCD Panel Illumination button to activate
ISO range	DCS 315: 100 - 400 DCS 330: 125 - 400
Self-timer	Electronically controlled; 10 seconds duration; can be cancelled
Accessory shoe	Standard ISO-type hot-shoe contact; ready-light contact, TTL flash contact, monitor contact; mount receptacle for SB-27/SB-26's Posi-Mount System
Built-in flash	Guide number: 20 (ISO 200, m); flash coverage: 20 mm or longer lens; Matrix Balanced Fill-Flash (DCS 330 only), Red-Eye Reduction, Slow Sync and Rear-Curtain Sync are possible
Flash synchronization	Up to 1/180 second
Flash recommended light	Lights up green when flash is recommended
Flash ready-light	Lights up red when flash is ready; blinks to indicate flash output level was full in previous shot
Flash output level compensation	From -3 to +1 EV, in 1/2 EV steps
Power source	Six AA format batteries and/or AC adapter
Battery power confirmation	On Image LCD panel
Kodak-specified AC Adapter	An alternative power source that allows you to conserve your battery while working indoors.
Dimensions	Width: 137 mm, Height: 174 mm, Depth: 76 mm
Weight	Approximately 3 pounds; (camera containing a battery, PC Card and lens)

Appendix B - Troubleshooting

If you run into a problem operating your camera, check the following table to see if you can find the cause of the problem. If the trouble persists, take the camera to your nearest service representative.

Symptom	Indication	Cause	Remedy
The shutter doesn't release.	The PC Card icon does not appear in the Image LCD panel.	The PC Card is not inserted, or not inserted properly or is in the wrong slot.	Insert a PC Card or check the insertion. Refer to "Inserting a PC Card" on page 4-2.
	Error message in the Image LCD panel states that no PC Card is installed.		
	Card not formatted message appears in the Image LCD panel.	The PC Card is not formatted.	Format the PC Card. Refer to "Formatting a PC Card" on page 4-4.
	The PC Card Busy LED blinks. The Images Available indicator on the Image LCD panel reads 0.	The PC Card is full.	Insert a different PC Card or delete some images. Refer to "Inserting a PC Card" on page 4-2 or "Deleting More Than One Image" on page 9-13.

Symptom	Indication	Cause	Remedy
The shutter doesn't release.	The Flash Ready light is blinking.	Flash output may have been insufficient.	Refer to "TTL Performance" on page 8-4.
	The Battery icon in Status screen indicates insufficient  or empty. 	The battery is dead.	Replace the batteries or use the Kodak-specified AC adapter. Refer to "Inserting Batteries" on page 2-4 or "Kodak-specified AC adapter" on page 2-8.
	FEE blinks	A lens other than IX-Nikkor lens is attached but not set to the smallest aperture setting.	Set the lens to the smallest aperture. Refer to "Setting the Lens to the Minimum Aperture" on page 1-21.
	The Exposure mode indicator and **F--** blink.	A non-CPU lens is attached or no lens is attached.	Attach a Nikkor CPU lens. Refer to "Mounting the Lens" on page 1-19.
	buLb blinks in the Camera Status LCD panel	Bulb is set in the Shutter-Priority Auto Exposure mode.	Set the Exposure mode to Manual or set another shutter speed. Refer to "Manual Exposure Mode (M)" on page 6-14.
		Auto Exposure Bracketing was set with a shutter speed set at "Bulb".	To use Auto Exposure Bracketing, select another shutter speed. Refer to "Auto Exposure Bracketing" on page 7-9.
The shutter doesn't release.	**FEE** blinks with a blinking **P**, **Ps**, or **S**.	The Speedlight is not set at TTL auto flash.	Set the Speedlight Flash mode to TTL, or set the camera's Exposure mode to Aperture-Priority or Manual.

Symptom	Indication	Cause	Remedy
The shutter doesn't work in Single Servo AF mode. (It can be released in Continuous Servo AF mode).	▶ ◀ blinks in the viewfinder	Autofocus is impossible with the subject.	Set the Focus Mode selector to M and focus manually using the clear matte field. Refer to "Using Manual Focus" on page 7-18.
	◀ stays in the viewfinder in AF mode.	The subject is located closer than the closest focusing distance of the lens.	Move away from the subject and refocus.
	blinks in the Camera Status LCD panel.	Built-in flash is being used in Continuous Shooting Drive mode. Drive mode automatically changes to Single-Frame shooting.	Capture one image at a time.
	blinks in the Camera Status LCD panel.	Red-Eye Reduction set with a Speedlight lacking Red-Eye Reduction. Camera automatically switches Flash Sync mode to Normal Sync.	
The shutter does not release.	The Flash Ready light is Off when the Built-in flash is up.	Built-in flash is not charged.	Wait for the flash to charge. If the delay is too long, replace the batteries or use an AC adapter.
Nothing appears in the LCD panels.		The camera is turned Off or there is no power source.	Turn the camera On or insert new batteries (or connect to the Kodak-specified AC adapter).
	HI appears in Auto exposure mode.	Overexposure possible.	
	Lo appears in Auto exposure mode.	Underexposure possible.	

Symptom	Indication	Cause	Remedy
	The Electronic Analog Display blinks in Manual Exposure mode.	The subject is too dark.	Select a wider aperture and/or slower shutter speed, or use the built-in flash or an accessory Nikon Speedlight.
	The shutter speed indications in the Camera Status LCD panel and viewfinder blink.	You are performing Auto Exposure Bracketing in Manual exposure mode.	This is proper operation
	Green ⚡ lights up inside the viewfinder.	Subject is too dark.	Use the built-in flash or an accessory Nikon Speedlight.
	Red ⚡ blinks inside the viewfinder after flash shooting.	Light may have been insufficient.	Confirm the shooting distance and, if necessary, move closer to the subject or select a wider aperture.
The date is not displayed in the Camera Status LCD panel.		The Pronea date/time function is disabled.	The date is displayed on the Image LCD panel. Refer to “Setting the Date and Time” on page 3-1.
Can’t tag an image.	The Tag icon does not appear in the Menu bar.	The REC/TAG button is being held for too long.	Quickly press and release the REC/TAG button to tag an image. Refer to “Tagging an Image” on page 9-9.
The image in the Image LCD panel or on the computer covers less of the scene than shown in the viewfinder.	Visual inspection.	Focal length zoom. (The viewfinder is sized to a negative which is slightly larger than the imager. As a result, the scene area is slightly smaller than that depicted in the viewfinder.)	Frame the subject within the brackets on the matte glass surface in the viewfinder.

Symptom	Indication	Cause	Remedy
The camera doesn't work.	Controls don't work and the LCD panels don't display.	No power to camera.	Verify battery placement and capacity or check the Kodak-specified AC adapter. Refer to "Batteries" on page 2-3 or "Connecting the Kodak-specified AC adapter" on page 2-9.
	The camera controls don't work.	The camera is "locked up."	Remove batteries and AC adapter and contact your service representative.
The Image LCD panel is not clearly visible.	The Image LCD panel is too light or too dark.	The Display Contrast is set incorrectly.	Adjust the Display Contrast. Refer to "Adjusting the Display Contrast" on page 9-4.
The image quality is not satisfactory.	A variety of unsuitable images.	Improper use of SLR camera functions.	Refer to chapters 6, 7, or 8 or consult your camera dealer.
The images are magenta.	Magenta cast to images.	A hot mirror is not being used.	Use the hot mirror.

Symptom	Indication	Cause	Remedy
Error messages appear on the Macintosh computer screen when the camera is connected to the computer using IEEE 1394 cable.	kLoginErr (-5693)	Another application is using the camera.	Quit any applications that may be using the camera (other than the one intended for immediate use). Turn the camera Off then On.
	timeoutErr (-4162)	The camera failed to respond to a command within the allotted time.	**1** Turn the camera Off then On. **2** If that doesn't work, quit all applications. Turn the computer and camera Off then On. **3** If that doesn't work, reload the firmware. Refer to "Loading Camera Firmware" on page 11-11.
	disconnectedErr (-4169)	The camera has been disconnected from the computer and the application is still trying to communicate with the camera.	✔ Quit the application and restart. ✔ If that doesn't work, turn the computer and camera Off then On.

Appendix C - Lens Compatibility

Compatible Lenses

Your camera will work with the following Nikkor lenses. Some work only without the antialiasing filter, and some work both with and without the filter. (Use the table below as a reference.)

Manual Single Focal Length Lenses

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai 6/2.8S	Fish Eye	x	x
Ai 8/2.8	Fish Eye		x
Ai 8/2.8S	Fish Eye	x	x
Ai 13/5.6		x	x
Ai 13/5.6S		x	x
Ai 15/5.6		x	x
Ai 15/3.5		x	x
Ai 15/3.5S		x	x
Ai 16/2.8	Fish Eye	x	x
Ai 16/2.8S	Fish Eye	x	x
Ai 16/3.5	Fish Eye	x	x
Ai 18/3.5S			x
Ai 18/4			x
Ai 20/2.8S			x
Ai 20/3.5		x	x
Ai 20/3.5S		x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai 20/4			x
Ai 24/2		x	x
Ai 24/2S			x
Ai 24/2.8		x	x
Ai 24/2.8S			x
Ai 28/2		x	x
Ai 28/2S			x
Ai 28/2.8		x	x
E 28/2.8			x
Ai 28/2.8S		x	x
Ai 28/3.5		x	x
Ai 28/3.5S		x	x
Ai 35/1.4		x	x
Ai 35/1.4S		x	x
Ai 35/2		x	x
Ai 35/2S		x	x
E 35/2.5	Series E		x
Ai 35/2.8		x	x
Ai 35/2.8S		x	x
Ai 50/1.2		x	x
Ai 50/1.2S		x	x
Ai 50/1.4		x	x
Ai 50/1.4S		x	x
Ai 50/1.8		x	x
Ai 50/1.8S			x
E 50/1.8		x	x
Ai 50/2		x	x
Ai 55/1.2		x	x
Ai 55/2.8	Micro	x	x
Ai 55/2.8S	Micro	x	x
Ai 55/3.5	Micro	x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai 58/1.2	Noct		x
Ai 58/1.2S	Noct	x	x
Ai 85/1.4S		x	x
Ai 85/2		x	x
Ai 85/2S		x	x
E 100/2.8		x	x
Ai 105/1.8S		x	x
Ai 105/2.5		x	x
Ai 105/2.5S		x	x
Ai 105/2.8S	Micro	x	x
Ai 105/4	Micro	x	x
Ai 105/4S	Micro	x	x
Ai 105/4.5S	Ultra Violet	x	x
Ai 135/2		x	x
Ai 135/2S		x	x
Ai 135/2.8		x	x
Ai 135/2.8S		x	x
E 135/2.8		x	x
Ai 135/3.5		x	x
Ai 135/3.5S		x	x
Ai 180/2.8		x	x
Ai 180/2.8S	ED	x	x
Ai 200/2	ED-IF	x	x
Ai 200/2S	ED-IF	x	x
Ai 200/4		x	x
Ai 200/4S		x	x
Ai 200/4	MC-IF	x	x
Ai 200/4S	MC-IF	x	x
Ai 300/2S	ED-IF	x	x
Ai 300/2.8	ED-IF	x	x
Ai 300/2.8S	ED-IF	x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai 300/4.5		x	x
Ai 300/4.5S		x	x
Ai 300/4.5	ED	x	x
Ai 300/4.5	ED-IF	x	x
Ai 300/4.5S	ED-IF	x	x
Ai 400/2.8S	ED-IF	x	x
Ai 400/3.5	ED-IF	x	x
Ai 400/3.5S	ED-IF	x	x
Ai 400/5.6	ED	x	x
Ai 400/5.6	ED-IF	x	x
Ai 400/5.6S	ED-IF	x	x
Ai 500/4S		x	x
Ai 600/4	ED-IF	x	x
Ai 600/4S	ED-IF	x	x
Ai 600/5.6	ED-IF	x	x
Ai 600/5.6S	ED-IF	x	x
Ai 800/5.6S	ED-IF	x	x
Ai 800/8	ED-IF	x	x
Ai 800/8S	ED-IF	x	x
Ai 1200/11	ED-IF	x	x
Ai 1200/11S	ED-IF	x	x
28/3.5	Perspective Control	x	x
35/2.8	Perspective Control	x[1]	x[1]
500/8	Reflex	x	x
1000/11	Reflex	x[2]	x[2]
2000/11	Reflex	x[3]	x[3]
120/4	Micro	x	x

[1] Lenses with product number 906200 and before cannot be used.

[2] Lenses with product number between142361 and 143000 cannot be used.

[3] Lenses with product number between 200111 and 200310 cannot be used.

Manual Zoom Lenses

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai Zoom 25-50/4		x	x
Ai Zoom 25-50/4S		x	x
Ai Zoom 28-45/4.5		x	x
Ai Zoom 28-50/3.5S		x	x
Ai Zoom 28-85/3.5-4.5S		x	x
Ai Zoom 35-70/3.3-4.5S		x	x
Ai Zoom 35-70/3.5		x	x
Ai Zoom 35-70/3.5S		x	x
Ai Zoom 35-105/ 3.5-4.5S		x	x
Ai Zoom 35-135/ 3.5-4.5S		x	x
Ai Zoom 35-200/ 3.5-4.5S		x	x
E Zoom 36-72/3.5	Series E	x	x
Ai Zoom 43-86/3.5		x	x
Ai Zoom 50-135/ 3.5S		x	x
Ai Zoom 50-300/4.5		x	x
Ai Zoom 50-300/4.5	ED	x	x
Ai Zoom 50-300/ 4.5S	ED	x	x
E Zoom 70-210/4	Series E	x	x
E Zoom 75-150/3.5	Series E	x	x
Ai Zoom 80-200/ 2.8S	ED	x	x
Ai Zoom 80-200/4S		x	x
Ai Zoom 80-200/4.5		x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
Ai Zoom 100-300/ 5.6S		x	x
Ai Zoom 180-600/ 8S	ED	x	x
Ai Zoom 200-400/ 4S	ED	x	x
Ai Zoom 200-600/ 9.5S	ED	x	x
Ai Zoom 360-1200/ 11S	ED	x	x
Ai Zoom 1200-1700/5.6-8S	ED-IF	x	x

Autofocus Single Focal Length Lenses

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
AF 16/2.8D	Fish Eye	x	x
AF 18/2.8D		x	x
AF 20/2.8		x	x
AF 20/2.8D		x	x
AF 24/2.8		x	x
AF 24/2.8D		x	x
AF 28/1.4D		x	x
AF 28/2.8		x	x
AF 28/2.8D		x	x
AF 35/2		x	x
AF 35/2D		x	x
AF 50/1.4		x	x
AF 50/1.4D		x	x
AF 50/1.8		x	x
AF 55/2.8	Micro	x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
AF 60/2.8	Micro	x	x
AF 60/2.8D	Micro	x	x
AF 85/1.8	RF	x	x
AF 85/1.8D		x	x
AF 85/1.4D		x	x
AF 105/2D	RF-DC	x	x
AF 105/2.8	Micro	x	x
AF 105/2.8D	Micro	x	x
AF 135/2	RF-DC	x	x
AF 135/2D	RF-DC	x	x
AF 180/2.8	ED-IF	x	x
AF 180/2.8D	ED-IF	x	x
AF 200/4D	ED-IF-MC	x	x
AF 300/2.8	ED-IF	x	x
AF 300/4	ED-IF	x	x
AF I 300/2.8D	ED-IF-DCM	x	x
AF I 400/2.8D	ED-IF-DCM	x	x
AF I 500/4D	ED-IF-DCM	x	x
AF I 600/4D	ED-IF-DCM	x	x
AF S 300/2.8D	ED-IF-SWM	x	x
AF S 400/2.8D	ED-IF-SWM	x	x
AF S 500/4D	ED-IF-SWM	x	x
AF S 600/4D	ED-IF-SWM	x	x

Autofocus Zoom Lenses

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
AF Zoom 20- 35/ 2.8D	ASP	x	x
AF Zoom 24- 50/ 3.3-4.5		x	x
AF Zoom 24- 50/ 3.3-4.5D		x	x
AF Zoom 24- 120/ 3.5-5.6D	IF	x	x
AF Zoom 28 - 70/ 3.5-4.5	ASP	x	x
AF Zoom 28 - 70/ 3.5-4.5D	ASP	x	x
AF Zoom 28- 80/ 3.5-5.6D		x	x
AF Zoom 28- 85/ 3.5-4.5S		x	x
AF Zoom 28- 85/ 3.5-4.5		x	x
AF Zoom 28-200/ 3.5-5.6D	IF	x	x
AF Zoom 35- 70/2.8		x	x
AF Zoom 35- 70/ 2.8D		x	x
AF Zoom 35- 70/ 3.3-4.5		x	x
AF Zoom 35- 80/ 4.0-5.6D		x	x
AF Zoom 35-105/ 3.5-4.5		x	x
AF Zoom 35-105/ 3.5-4.5D	IF	x	x

Lens Name	Lens Type	Works with Antialiasing Filter	Works without Antialiasing Filter
AF Zoom 35-135/ 3.5-4.5		x	x
AF Zoom 70-210/4		x	x
AF Zoom 70-210/4-5.6		x	x
AF Zoom 70-210/4-5.6D		x	x
AF Zoom 70-300/ 4.5-5.6D	ED	x	x
AF Zoom 70-300/ 4.5-5.6		x	x
AF Zoom 80-200/ 2.8	ED	x	x
AF Zoom 80-200/ 2.8D	ED	x	x
AF Zoom 80-200/ 4.5-5.6D		x	x
AF Zoom 75-180/ 4.5-5.6D	ED-MC	x	x
IX Zoom 20-60/3.5-5.6			x
IX Zoom 24-70/3.5-5.6			x
IX Zoom 60-180/ 3.5-5.6			x

Incompatible Lenses

You cannot use non-AI or modified AI lenses with your camera.

CAUTIONS: ⚠

The IX-NIKKOR lens can only be used on the DCS 315 or on the DCS 330 when the antialiasing filter is removed. You will break the antialiasing filter if you attempt to install an IX-NIKKOR lens when the filter is in place.

Do not attach the following Nikkor lenses and teleconverters to your DCS 315 or DCS 330 camera. They can damage the camera or the lens:

- ✔ Non-AI lenses
- ✔ AF Teleconverter TC-16A
- ✔ AF Teleconverter TC-16
- ✔ Lenses which require a Focusing Unit AU-1
- ✔ Fisheye 6mm f/5.6
- ✔ Fisheye OP 10mm f/5.6
- ✔ Reflex 1000mm f/11 (Factory Serial No. 142361-143000)
- ✔ ED 180mm-600mm f/8 (No. 174041-174180)
- ✔ ED 360mm-1200mm f/11 (No. 174031-174127)
- ✔ 200-600mm f/9.5 (No. 280001-301922)
- ✔ AF Nikkor 80mm f/2.8 (for F3AF)
- ✔ AF Nikkor 200mm f/3.5 IF

Appendix D - Glossary

AE (Automatic Exposure) lock

Holds an automatically controlled shutter speed and/or aperture. Recommended when you want to control an exposure based on a scene's particular brightness area with Center-Weighted or Spot metering.

Auto Exposure Bracketing

Operates using various shutter speeds and/or apertures in all exposure modes. (See also Exposure Bracketing.)

Automatic Balanced Fill-Flash

A TTL auto flash function integrating exposure meter control of ambient light exposure setting and flash exposure control. Automatically adjusts flash output to compensate for available ambient light, optimizing exposure of subject and background.

Auto-Multi Program

More than two combinations of shutter speed/aperture are applied. When lens focal length in use is shifted, shutter speed/aperture combination shifts while correct exposure is maintained.

Balanced fill-flash operation

A technique for flash photography in which flash illumination is balanced and controlled in conjunction with the scene's ambient light.

Continuous Servo AF

Focus detection continues as long as the Shutter Release button is lightly pressed and the reflex mirror is in the viewing position. Useful when the camera-to-subject distance is likely to change.

Continuous Servo AF engages release-priority, so the shutter can be released regardless of focus status.

CPU (Central Processing Unit)

The component that controls an electronic product's functions.

AF Nikkor (including D-type AF Nikkor) and AI-P Nikkor lenses have built-in CPUs.

The DCS 300 Series camera has a Motorola 821 Power PC CPU.

Depth of field

The zone of sharpest focus in front of, behind, and around the subject upon which the lens is focused. When this zone of sharpness is large, the depth of field is said to be deep; when it is small, the depth of field is said to be shallow. Depth of field varies according to numerous factors such as focal length, aperture, shooting distance, etc.

D-type AF Nikkor lenses

These AF Nikkor lenses send to the camera's microcomputer the distance information used for 3D Matrix Metering. Identified by the letter "D" which follows information on maximum aperture (e.g., AF Zoom-Nikkor 35-80mm f/3.5-4.5 D). All IX-Nikkor, AF-1 Nikkor lenses, and AF-S Nikkor lenses are D-type lenses.

EV (Exposure Value)

A number representing the available combinations of shutter speeds and apertures that give the same exposure effect under conditions of similar scene brightness and ISO.

At ISO 100, the combination of a one-second shutter speed and an aperture of f/1.4 is defined as EV1.

The camera may be used only within the EV range of the exposure meter. For example, the exposure metering range is from EV 0 to EV 20 for 3D Matrix Metering and Center-Weighted Metering, at ISO 200 with an f/1.4 lens.

Exposure Bracketing

Shooting the same subject at a range of different exposures. Your camera provides Auto Exposure Bracketing and Flash Exposure Bracketing.

Exposure Compensation

Exposure compensation for available light is activated by changing shutter speed and/or lens aperture—by Auto Exposure Lock button, by Exposure Compensation, or by Exposure Bracketing.

In flash photography with a Nikon-dedicated TTL Speedlight, Exposure Compensation can also be performed by varying the amount of flash output. (See also Flash Output Level Compensation.)

Exposure control

Programmed Auto: Sets shutter speed and aperture for correct exposure. Two Programmed Auto Exposure controls are applied: Auto-Multi Program and Vari-Program.

Shutter-Priority Auto: The user selects the shutter speed and the camera sets the matching lens aperture for correct exposure.

Aperture-Priority Auto: The user selects the aperture and the camera sets the matching shutter speed for correct exposure.

Manual: The user selects both shutter speed and aperture, regardless of whether he or she follows the meter's LCD readout recommendations to achieve desired exposure.

Fill-flash

A method of flash photography that combines flash illumination and ambient light, but does not necessarily attempt to balance these two types of illumination.

Flash Exposure Bracketing

Enables you to automatically bracket exposures at various flash output levels, in TTL auto flash shooting, without changing shutter speed and/or aperture. (See also Exposure Bracketing.)

Flash Output Level Compensation

A control to adjust a TTL auto flash operation by increasing or decreasing flash output to lighten or darken the exposure.

Flash shooting distance range

The distance range over which a flash can provide light effectively. Flash shooting distance range is controlled by the amount of flash output available. Each automatic Speedlight's flash output varies from maximum duration to minimum duration. Close-up subjects require lower (down to minimum) output, while more distant subjects require more light (up to maximum) output.

The flash shooting distance range varies according to aperture, ISO, etc.

Flash sync speed

Shutter speed at which the entire frame is to be exposed when the flash is fired in flash shooting. The DCS 300 Series' flash sync speed is 1/180 second or slower.

Flexible Program

Temporarily shifts an automatically selected shutter speed/aperture combination while maintaining correct exposure. That is, a desired shutter speed or aperture can be selected with the camera in Programmed Auto Exposure mode.

Focus Tracking

Enables the camera to assess the speed of a moving subject according to perceived focus data, then set correct focus settings by anticipating subject position--and driving the lens to that position at the exact moment of exposure.

f-number

The numbers on the lens aperture ring and on the camera's LCD which indicate the relative size of the lens aperture opening. The f-number series is a geometric progression based on changes in the lens aperture opening as it opens and closes. Going up the scale, each number is multiplied by a factor of 1.4. Each f-number on the scale (except for the lowest) actually represents double the amount of light transmitted through the lens using the f-number below it. The standard numbers for calibration are 1.0, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, etc.

Front-Curtain Sync

The flash fires an instant after the front curtain of a focal plane shutter has finished traveling across the imager plane with the Flash Sync mode at normal sync. (See also Rear-Curtain Sync.)

Guide number

The guide number indicates flash power in relation to ISO speed. Guide numbers are quoted in either meters or feet, and are used to calculate f/stop for correct exposure as follows:

$$\text{f/stop} = \frac{\text{guide number}}{\text{flash-to-subject distance}}$$

Using a selected aperture, the required flash-to-subject distance can be calculated by using the formula:

$$\text{flash-to-subject distance} = \frac{\text{guide number}}{\text{f/stop}}$$

Useful for determining the maximum flash-to-subject distance for flash photography.

Hyperfocal distance

The closest point upon which a photographer can focus where depth of field is infinity. When the lens is focused for hyperfocal distance, the deepest depth of field, covering from 1/2 the hyperfocal distance to infinity, can be obtained at each f/stop. The longer the focal length, the longer the hyperfocal distance; the smaller the aperture (the larger the f/number), the shorter the hyperfocal distance.

ISO

The international standard for representing film sensitivity. The higher the number, the greater the sensitivity, and vice versa. For example, ISO 200 is twice as sensitive as ISO 100, and half as sensitive as ISO 400. When you change the ISO setting on your camera, you adjust the sensitivity of the imager equivalent to the corresponding film sensitivity.

JPEG

A compressed image file format with a color space that is understood by all applications including Photoshop. This format was developed by the Joint Photographic Experts Group.

Matrix Metering system

This advanced light metering system using multi-segment sensor and computer is available in the DCS 330 camera.

3D Matrix metering (DCS 330 only) is performed when your camera is used with D-type AF Nikkor lenses.

Rear-Curtain Sync

Flash fires an instant before the second (rear) curtain of the focal plane shutter begins to move. When slow shutter speeds are used, this feature can create a blur effect using ambient light, i.e., the exposure traces flowing light following a moving subject, and the subject's movement is frozen at the end of the trial of light. (See also Front-Curtain Sync.)

Single Servo AF

Once the subject is in focus, focus is locked. This is useful when recomposing the picture. For Single Servo AF, focus-priority is given so the shutter cannot be released until the subject comes into focus.

Slow Sync

A flash technique for using the flash at a slow shutter speed. Flash shooting in dim light or at night at a fast shutter speed often results in a flash-illuminated subject against a dark background. Using a slower shutter speed with the flash allows background details to show up better. Use of a slow shutter speed with rear-curtain sync is particularly effective for capturing a stream of light's movement.

Slow Sync mode extends the automatically controlled shutter speed range (in Programmed Auto and Aperture-Priority Auto) down to 30 seconds.

Standard TTL Flash

This type of TTL Auto flash does not apply automatic flash output compensation. Rather, it controls flash output independently according to ambient light exposure measurement. In most cases, Standard TTL flash illuminates a subject somewhat more strongly than Automatic Balanced Fill-flash does, so the subject stands out more distinctly from the background.

TIFF

Tagged Image Format. The TIFF Custom file format is proprietary to Kodak. Before you use TIFF Custom images, you will first need to acquire (import) them through a program such as Photoshop, using the Kodak Software (on the CD included with your camera). If you try to open these files in Photoshop without first acquiring them, only the thumbnail version will be available.

TTL auto flash

The camera's light sensor measures flash illumination, as reflected by the subject on the imager and shuts off the flash when the measurement indicates correct exposure. Because the sensor that controls the flash receives light through the lens, TTL auto flash can be used for bounce flash photography, Fill-flash, multiple flash photography, etc. An additional advantage of TTL Auto flash is that you can use a wide range of aperture settings, while ensuring correct exposure.

With built-in flash or a dedicated Nikon TTL Speedlight, your camera performs automatic balanced fill-flash and standard TTL flash.

Vari-Program

Provides variable programs for specific picture-taking situations. Six programs are available.

Vignetting

Progressively diminishes illumination on the imager from the center to the corners. There are two kinds of vignetting: natural vignetting caused by the lens, and vignetting caused by improper use of accessories such as lens hood or filter.

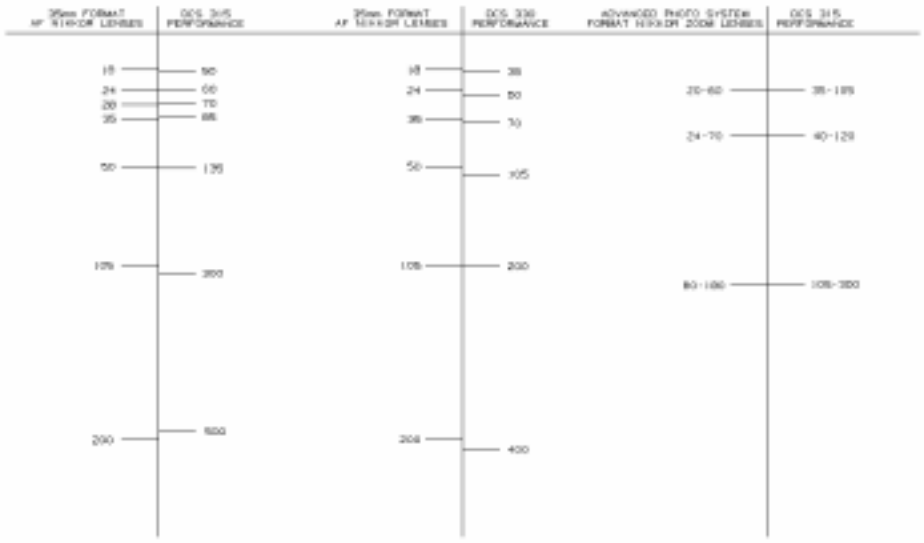
Appendix E - Focal Length Conversion

The imager in your camera has a smaller image area than 35mm film or Advanced Photo System film. Because of this difference in size, images obtained from a DCS 300 Series camera using lenses designed for Nikon film cameras will also differ in size.

The table on this page and the figures on the next page will help you make your lens selections for your Kodak DCS 300 Series camera. The table shows the relationship between Nikkor 35mm lenses and the DCS 315 and DCS 330 cameras, and the IX-Nikkor lenses and the DCS 315 camera. For example, if you captured an image using a 50mm lens on your 35mm film camera, you would need a 19mm Nikkor lens on a DCS 315 or a 26mm Nikkor lens on a DCS 330 to obtain the same image.

When compared to a 35mm film camera, a DCS 330 image will appear to have been captured with a 35mm Nikkor lens having a focal length about 1.9 times longer than was actually used. For the DCS 315, this apparent 35mm Nikkor lens focal length change will be about 2.6 times. When compared to a Pronea 6i film camera capturing images in Classic mode, a DCS 315 image captured with an IX-Nikkor lens will appear to have been captured with an IX-Nikkor lens whose focal length was about 1.7 times longer.

Focal Length Conversion Table										(mm)
35mm Lenses	18	20	24	28	35	50	70	105	200	300
DCS 330	9	10	13	15	18	26	37	55	104	157
DCS 315	7	8	9	11	13	19	27	40	76	114
IX-Nikkor Lenses	20	24	28	35	50	60	70	100	135	180
DCS 315	12	14	17	21	30	36	42	60	81	109


35mm FORMAT
AF NIKKOR LENSES
DCS 315
PERFORMANCE
35mm FORMAT
AF NIKKOR LENSES
DCS 330
PERFORMANCE
ADVANCED PHOTO SYSTEM
FORMAT NIKKOR ZOOM LENSES
DCS 315
PERFORMANCE
15
24
28
35
50
105
200
90
60
70
85
135
300
500
15
24
35
50
105
200
38
50
70
105
200
400
20-60
24-70
80-180
38-185
40-125
105-300

Appendix F - Problem Report

KODAK PROFESSIONAL DCS 300 Series Digital Cameras

Customer Return Address

Name_____

Company_____

Address_____

_____

_____

City_____State_____Zip_____--_____

Phone ( ) _____

Equipment Description

Camera Serial Number -- K_____
(See the bottom of the camera next to “S/N.” The serial number begins with a “K.”)

Problem Description

_____

_____

_____

_____

_____

_____

_____

☛ If you need to return your camera for repair, please fill out a copy of this form and include it in the box with the camera.

Numerics

A

B

C

D

E

F

G

H

I

J

L

M

N

O

P

Q

R

S

T

V

W

Z

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