

FCC ID: NJB9452012/



PRETEC CORPORATION

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Applicant : PRETEC CORPORATION

Equipment Type : Digital Camera

Model : DC-520

Warranty Policy

This camera is under warranty for one full year from the date of purchase by the original purchaser. In case of defects in materials or workmanship, we will replace or repair the camera free of charge. This warranty applies to the camera only. This warranty does not include batteries, or other accessories which have not been manufactured by our company. This warranty will not be honored if the camera has been mishandled or tampered with, or altered by anyone other than the manufacturer. Other than for the warranty herein, we are not responsible for loss, damage, or inconvenience of any kind.

A defective camera being returned under warranty must be accompanied by a brief description of the difficulties encountered and also by a proof of purchase with the date of purchase clearly indicated. All related transportation costs and insurances are at the owner's expense. Any alteration of this warranty cannot be made without the written approval from our company.

FCC Notice

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 commercial installation. This equipment generates, uses and can radiate radio frequency 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, detectable by turning the equipment in question off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna; Increase the distance between the equipment and the receiver; Connect the equipment to an outlet on a different circuit than that which the receiver is connected to; Or consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: To assure continued compliance, use only the provided interface cables with ferrite cores when connecting to computer or peripheral devices. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

CAUTION

	Do not place this camera in damp or dusty location. This may cause a fire or electric shock.
	Do not place this camera in a location affected by oil fumes or steam, such as near a cooking stove or humidifier. This may cause a fire or electric shock.
	Do not leave this camera in places subject to extremely high temperatures, such as in a sealed vehicle or in direct sunlight. Exposure to high temperatures may adversely affect the camera case and internal components and cause a fire.
	Do not cover or wrap the camera or the AC power adapter with a cloth or quilt. This may cause heat to build up and distort the case or cause a fire. Always use the camera and its accessories in well-ventilated locations.
	Take care that the camera is not bumped when it is being moved. This may cause the camera to malfunction.
	Do not move the camera while it is switched on. (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have switched off the camera.) Then ensure that any connector cords or cables to other devices are disconnected before moving the camera. Failure to do so may damage the cords or cables and cause a fire or electric shock.
	When handling the camera, always unplug it from the power source (batteries or AC power adapter) for safety. (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) Failure to do so could result in an electric shock.

CAUTION

	When leaving the camera unused for long periods, such as during a vacation, always unplug the camera from the power source (batteries or AC power adapter) for safety. (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) Failure to do so could result in a fire.
	Contact your dealer or local authorized service facility to request cleaning of the interior of the camera every two years. Allowing dust to accumulate in the camera for long periods without cleaning the camera interior may cause a fire or electric shock. Cleaning is best performed prior to seasonal periods of high humidity. Consult with your dealer or local authorized service facility for information on the cost of cleaning your camera.
	Do not use batteries other than those specified for use with your camera. The use of unsuitable batteries may result in the batteries spitting or leaking and causing a fire, injury, or soiling of the battery compartment.
	When fitting a battery into the camera, check the polarity markings on the battery (eando) to ensure that you insert the battery correctly. Incorrect battery polarity may result in the batteries spitting or leaking and causing a fire, injury, or soiling of the battery compartment.
	Remove the batteries if the camera will not be used for an extended period of time. The batteries may leak and cause a fire, injury or soiling of the battery compartment. If the batteries leak, clean and wipe the battery compartment carefully and install new batteries. Wash your hands carefully if you touch the battery fluid.

WARNING

Unplug from power socket



Do not use this camera when it is emitting smoke, is unusually hot to the touch, is emitting any unusual odor or noise, or is in any other abnormal state. Use of the camera in any of these situations may cause a fire or electric shock. Stop using the camera immediately, turn the camera off, and then disconnect the power source (batteries or AC power adapter). (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) After checking that smoke is no longer being emitted, contact your dealer or your local authorized service facility and request repairs. never attempt to repair this camera yourself as this is dangerous.



Do not use the camera if any water has entered the camera. Switch the camera off, and then disconnect the power source (batteries or AC power adapter). (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) Then contact your dealer or your local authorized service facility. Do not continue to use the camera as this may cause a fire or electric shock.



Do not use the camera if any foreign objects have entered the camera. Turn the camera off, and then disconnect the power source (batteries or AC power adapter). (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) Then contact your dealer or your local authorized service facility. Do not continue to use the camera as this may cause a fire or electric shock.



If the camera has been dropped or the camera case has been damaged, switch the camera off, and then disconnect the power source (batteries or AC power adapter). (If you are using the AC power adapter, unplug the adapter from the AC power outlet after you have disconnected the camera.) Then contact your dealer or your local authorized service facility. Do not continue to use the camera as this may cause a fire or electric shock.

WARNING

Do not place the camera in unstable locations such as on a wobbly table or sloping surface where the camera may fall or tip over and cause injury.



Take care that the camera is not exposed to moisture and that water does not get into the camera. Take particular care when it is raining or snowing or when you are using the camera at the beach or near water. Water in the camera may cause a fire or electric shock.



Do not insert or drop metallic or inflammable foreign objects into the camera through access points such as the Compact Flash card slot. This may cause a fire or electric shock.



Do not attempt to modify this camera. This may cause a fire or electric shock.



Do not disassemble

Do not remove the camera casing. This may cause an electric shock. Internal inspection, maintenance and repairs should be carried out by your dealer or local authorized service facility.



Do not use in wet areas

Do not use this camera in the bathroom. This may cause a fire or electric shock.



Do not touch

Do not touch the power plug during a thunderstorm if you are using the AC power adapter. This may cause an electric shock.

WARNING

	Never use this camera, look through the viewfinder, or watch the LCD (liquid crystal display) while you are operating a moving car, motorcycle or bicycle. This may cause a traffic accident.
	Do not attempt to charge the alkaline battery. This may cause the battery to split or leak, causing fire or injury.
	Do not carry or store a battery with objects such as metal pens, necklaces, coins or hairpins. This could short circuit the positive ⊕ and negative ⊖ poles of the battery. This may cause the battery to split or leak, resulting in fire or injury.
	Do not heat or attempt to disassemble a battery, and do not place a battery in water or in a fire. Any of these may cause the battery to split or leak, cause fire or injury.
	Do not subject a battery to strong impacts, such as hitting it with a hammer, stepping on it or dropping it. Any of these may cause the battery to split or leak, cause fire or injury.
	Use only the specified batteries or AC power adapter specified for use with this camera. The use of other power sources may cause a fire.

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Getting Started

Congratulations on purchasing your new digital & PC camera. This camera is a pocket-size digital camera and USB PC camera in one. Take digital pictures in an instant, or hook the camera to a computer and use it as a video camera for videoconferencing and capturing video clips.

This state-of-the-art camera affords the convenience and flexibility of a digital image capture device while retaining the ease of use of traditional cameras. To see the pictures you have taken, simply connect the camera to a PC monitor or TV. A built-in, non-expiring flash and an auto-flash sensor, which automatically detects whether the flash should be engaged, help ensure that your pictures turn out right. 2MB of digital memory gives generous, flexible image storage capacity. Pictures taken with your camera can be easily downloaded to your computer with the included TWAIN Acquisition software. Once downloaded, you can use any image editing software to enhance your pictures before emailing or printing them.

Keep in touch with distant family and friends through videoconferences with your new camera. Just plug it into the USB port of your desktop or notebook computer and make yourself known in cyberspace. Talk with people on the Internet face-to-face. Take classes through distance education. With the digital & PC camera, you can also record short video clips and include them in your web page or send them with your e-mail.

What's Inside:

- Digital Camera & USB PC Camera in one
- Digital Camera Driver Diskettes (for PC and Macintosh)
- Software CD (image editing software)
- Quick Start Guide
- Owner's Manual
- Serial cable (PC or Macintosh)
- USB cable
- Power cable
- Pouch (for containing the camera)
- 5.0V power adapter
- 2 x AA alkaline batteries
- Strap

Disk Contents

- Image Editing Software - Allows you to quickly and easily touch up any photo captured with your camera.
- TWAIN Acquire Module - Lets you download pictures from all TWAIN-compliant devices, like your camera, to your computer.

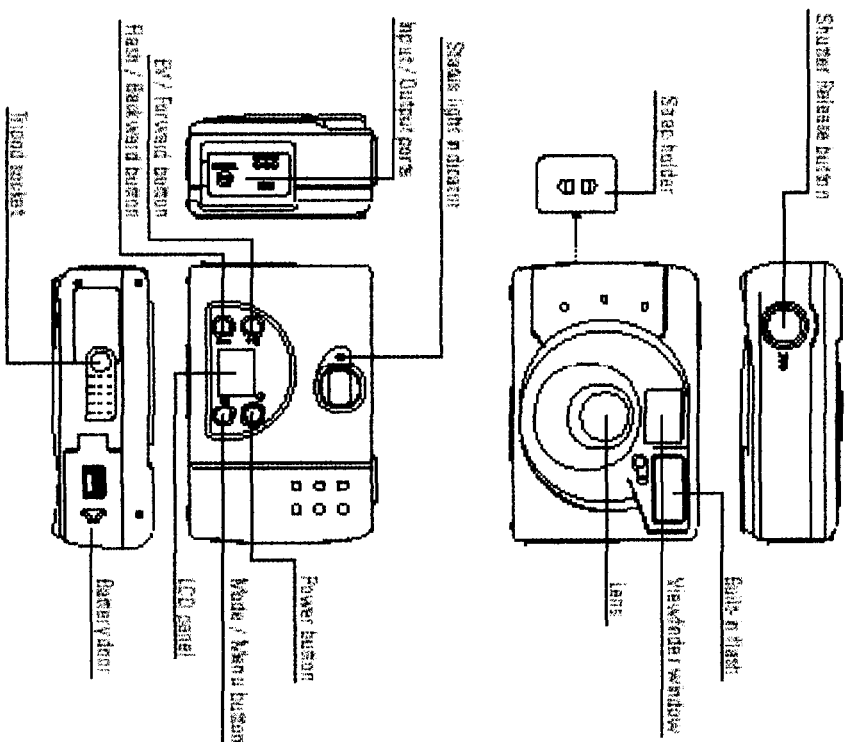
System Requirements (Windows)

- 486, 33MHz processor or faster
- Microsoft Windows 95 and higher
- 8MB or more of RAM
- 20MB of hard disk space
- CD-ROM drive
- Available serial port (for downloading images to the computer)
- Available USB port (for using the video camera feature)
- Color display (640x480 24-bit or higher recommended)

System Requirements (Macintosh)

- Power PC or above
- System 7.5 or higher
- 8MB or more of RAM
- 20MB of hard disk space
- Available serial port and CD-ROM drive
- Available USB port
- Color display (640x480 24-bit or higher recommended)

Getting to know the camera

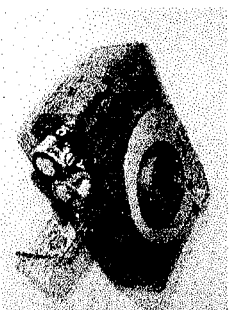


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Using Your Camera as a Digital Camera

To take digital pictures with your camera, you can use either batteries (AA-size Alkaline) or the included power adapter.

If you will be using your camera as a video camera for your PC, you won't need any batteries nor a power adapter. The camera absorbs power from your computer through the USB port.



Inserting Batteries

1. The battery door is located at the bottom of the camera. Slide the battery door in the direction indicated by the arrow to open it.
2. Insert the batteries as indicated on the inner side of the battery door.

Notes:

- If you are not going to be using the camera for an extended period of time, you should remove the batteries to prevent leaks or corrosion.
- Never use manganese batteries.
- Never mix old and new batteries.
- Low temperatures (under 0°C) may reduce the output efficiency of batteries, thereby shortening the operation time of the camera.)
- The recommended battery types are PANASONIC, TOSHIBA or DURACELL ULTRA alkaline or rechargeable.

Battery Life Indicator

When the camera has sufficient power, the Battery Power icon on the LCD panel will be fully shaded. When power is low, only the lower portion of the icon will be shaded. This indicates that the batteries are weak and need to be replaced. It is recommended that you do not use the Flash or Auto-Flash features while battery power is low. Generally, once the Low Power icon appears, approximately 10 minutes of operation time is available. When the batteries are completely dead, the camera will not turn on.



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Operating Modes of the Digital Camera

- When the camera is used as a digital camera, it operates in one of three modes: Record, Play or Menu mode.
- ## Changing Between Record and Play Modes
- Switch to Record mode if you want to take pictures. Choose Play mode to view the pictures on a computer monitor or TV screen.
- The Mode/Menu button located at the lower right corner of the LCD panel toggles between Record and Play modes. Upon pressing this button, release it quickly to immediately change mode.
- 
- The diagram shows a top-down view of the camera's LCD panel. The panel displays '3D' in large letters, with '12:11' and '100%' above it, and '1.5' below it. To the right of the panel is a circular button with a plus sign (+) and a minus sign (-). Below the panel is another circular button with a play icon (a triangle inside a circle). A hand is shown pressing this button. The button is labeled '1'.

Switching to Menu Mode

Menu mode displays different camera settings at a time on the LCD panel. In this mode, you can set the camera with your choices.

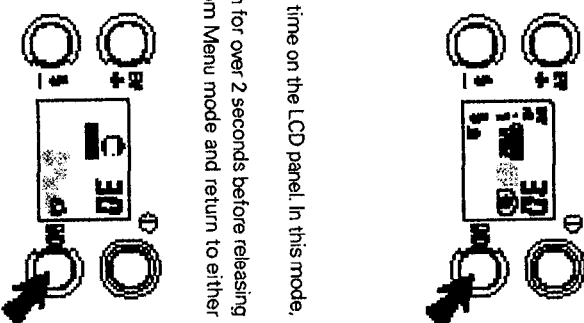
To enter Menu mode, press the Mode/Menu button for over 2 seconds before releasing the button. Do the same thing when you exit from Menu mode and return to either Record or Play mode.

To know more about the Menu mode, see the Changing Digital Camera Options section.

Status Light Indicator

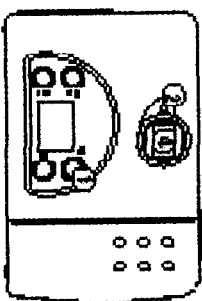
At the back of the camera, the Status light indicator flashes a green light when you power on the camera. The same thing happens when you press any of the buttons at the back of the camera or you've selected an option in Menu mode. Always wait for the light to stop blinking before you proceed.

- light to stop blinking before you proceed.



Taking Pictures

Taking pictures is quite easy. You can simply use the default settings, or you can fine tune the camera according to your needs. See the Changing Digital Camera Options section for more information.



To take pictures:

1. Turn the camera on by pressing the Power button (located at the upper right corner of the LCD panel).
2. As the camera warms up, the Status light indicator at the back of the camera flashes a green light. Wait for the light to stop blinking.
3. Make sure that the camera is in Record mode. If your camera is not in this mode, press the Mode/Menu button (located at the lower right corner of the LCD panel). The Record mode icon appears on the LCD panel.
4. Using the Viewfinder, focus on the object you want to capture.
5. Press the Shutter release button to take the picture.



If you want to take more pictures, first look at the number shown on the LCD panel. This is the number of image shots left. As more pictures are taken, this number decrements. When it reaches zero, that means your digital camera is already full with images. If this happens, download the images into your computer and erase them from the camera's memory so that you can take more pictures. See the Downloading Pictures from the Camera section for further instructions.

Viewing Pictures

To view the pictures stored in the camera:

1. Connect the camera to a PC monitor, Macintosh monitor or TV. To find out about proper cable connections, refer to the Input/Output Ports section.
2. Switch to Play mode. Press the Mode/Menu button. The Play mode icon appears on the LCD panel. The number of pictures already taken also shows on the LCD panel.
3. Your PC monitor, Macintosh monitor or TV (whichever is connected to the camera), displays the last picture taken. To scroll through the pictures stored in the camera's memory, press the Forward or Backward button located at the left side of the LCD panel.
4. If you want to resume taking pictures, disconnect the camera from the computer monitor or TV. Then, press the Mode/Menu button again to return to Record mode.

Notes:

Before you can view pictures on a TV, you need to identify first what video standard your television uses. If you have an NTSC standard TV, select the NTSC Output option in Menu mode. If you have a PAL standard TV, select the PAL Output option.

Changing Digital Camera Options

Several digital camera options are available in Menu mode which you can change to suit your needs.

How to Change Digital Camera Options in Menu Mode

1. Switch to Menu mode. To enter Menu mode, press the Mode/Menu button for over 2 seconds and then release the button.
2. Each option appears (blinking) on the LCD panel one at a time. To go to the next option, press the Mode/Menu button and release it instantly.
3. To select the option currently shown on the LCD panel, press the Shutter release button.
4. Repeat steps 2 and 3 to view more options and make your desired selections.
5. After you are done with your selections, press the Mode/Menu button for over 2 seconds and then release the button. This allows you to exit from Menu mode and return to either Record or Play mode, depending on which of these two modes you were last on.

Options in Menu Mode

In Menu mode, there are 8 options available for selection.

-  ● **Erase Current Picture** -- Removes the current picture from the camera's memory. (This option is applicable only in Play mode.)
-  ● **Erase All Pictures** -- Removes all pictures from the camera's memory. Do not select this option if you have not yet downloaded the pictures to your computer. (This option is applicable only in Play mode.)
-  ● **Normal Quality** -- This is the acceptable image quality for digital pictures. At Normal quality, you will be able to take a maximum of 32 pictures with the camera.
-  ● **Fine Quality** -- Captures images at the best possible quality. If you select this option, you will be able to take 16 pictures at most.
-  ● **Set Self-Timer Off** -- Allows you to take pictures manually.
-  ● **Set Self-Timer On** -- Sets a 10-second delay when taking pictures. If you want to take a picture of yourself and there is no one to help you, you can select this option and give yourself time to make your favorite pose before taking your own picture.
-  ● **NTSC Output** -- Allows your pictures to be displayed on an NTSC standard TV.
-  ● **PAL Output** -- Allows your pictures to be displayed on a PAL standard TV.

Erasing Pictures from Memory

To delete unwanted pictures from the camera's memory:

1. Make sure that you are in Play mode. To enter Play mode, press the Mode/Menu button instantly and release the button.
2. To delete a picture, scroll to that picture using the Forward or Back button located at the back of the camera.
3. Now change to Menu mode. To enter this mode, press the Mode/Menu button for over 2 seconds and release the button.
4. The Erase Current Picture icon appears on the LCD panel, blinking. Press the Shutter release button to delete the current picture.
5. To erase all the pictures in memory, select the Erase All Pictures icon in Menu mode. Pressing the Shutter release button deletes all images in the camera's internal memory.

Defining Picture Quality

Two different elements combine to determine the quality of the pictures that you take. The first is resolution. This digital camera can take pictures at 640 X 480 resolution. The second element is the amount of compression applied to captured images. This camera can capture images using two types of compression settings. Normal (high compression) and Fine (low compression). The lower the compression, the higher the image quality will be but lesser number of pictures can be captured. Higher compression allows more pictures to be taken and the image quality is acceptable.

Normal Quality: 32 pictures

Fine Quality: 16 pictures

To set the picture quality that the camera will use when capturing:

1. Make sure that the camera is in Menu mode.
2. To select a Normal Quality level, press Mode button to scroll down the options until N appears on the LCD panel. Then, press the Shutter release button to confirm the selection.
3. If you want to have Fine Quality, press mode button to scroll down the options until F appears on the LCD panel. Then, press the Shutter release button to confirm the selection.

The level of compression will be indicated in the LCD panel as follows:

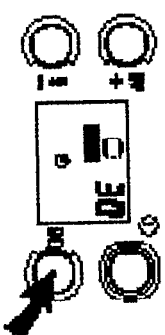
N - for Normal Quality

F - for Fine Quality

Using the Self-Timer

The Self-Timer creates a 10-second delay between the time you press the Shutter release button and the time the picture is taken. You can activate the Self-Timer by selecting the Self-Timer On option in Menu mode. The 10-second delay is indicated by the

Status light indicator flashing once per second for seven seconds, then twice per second for the last three seconds. After a picture has been captured, the Self-Timer sets off automatically. You will need to enter Menu mode and turn on the Self-Timer every time you want to use it.



Using the Flash

The camera has two different flash modes:

- **Off (default)** The flash is disengaged no matter what the ambient brightness of the surroundings is.

- **Auto** The camera automatically fires the flash when the brightness of the subject or scene is too low.

To set the Flash mode:

1. Make sure that the camera is in Record mode.
2. Use the Backward/Flash button to choose the desired Flash mode. The currently selected Flash mode will be indicated in the LCD Panel with the following icons:



- Off



- Auto

EV Compensation

The Exposure Value (EV) system is a method of stating exposure settings by means of a single number instead of the traditional f-stops and shutter speeds. All combinations of lens openings and shutter speeds that give the same exposure are represented by a single number.

This camera will automatically choose the most appropriate EV value for a given situation. However, the EV value can also be manually compensated as follows:

1. Make sure the camera is in Record mode.
2. The LCD panel shows the EV Compensation scale. Press the EV / Forward or the Flash / Backward button (located at the left side of the LCD panel on the back of the camera) to select a higher or lower value.

The effective EV Compensation range of this camera is from -1EV to +1EV in 0.5 EV steps. Increasing the EV Compensation value will result in the picture being more exposed (i.e., brighter). Decreasing the EV Compensation value will result in the picture being less exposed (i.e., darker).

Downloading Pictures from the Camera

Once your camera's memory is full, you must remove pictures from memory before capturing new ones. To save pictures, transfer them from the camera to your computer. When your camera's memory is full, the green Status light indicator will flash every one second. See the Input/Output ports for further instructions.

Connecting to Your Computer

For RS232 interface:

1. Plug one end of the serial cable into the COM port (on a PC) or modem port (on a Macintosh). These ports are located at the back of your computer.
2. Connect the other end of the serial cable to the camera.
3. Turn on your camera.



PC



MAC

For USB interface (Optional, for PC only):

- 1 Plug one end of the USB cable into the USB port.
- 2 Connect the other end of the USB cable to the camera.
- 3 Turn on your camera.



Note: Downloading images through a PC's USB port is faster than a serial port.

Using Your Camera as a USB PC Camera (PC Only)

Aside from taking pictures, you can also use your camera as a video camera for your PC.

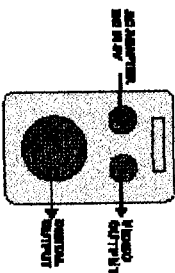
1. Connect a USB cable to the camera and to your PC's USB port.
2. Put the camera on a desktop or on top of your PC monitor.
3. Adjust the position of the camera and focus it on a subject or scene.

Input / Output Ports

The camera is capable of two types of output: to video, or to a personal computer. On the side of the camera are three ports:

Video Output, Power Supply and PC/Macintosh/USB Output.

- The Video Output connector allows you to transmit stored images to a standard television set. To transmit stored images to your television or VCR, simply attach one end of a video line to the Video Output port of the camera, and the other end to the video-in port on the television or VCR.



- To download images to your computer, attach one end of the supplied connector cable to the PC/Macintosh/USB Output port (or USB port) of the camera, and the other end of the cable to the back of your computer (PC or Macintosh). Once both ends are properly attached, use the included TWAiN capture driver to capture the images stored in the camera's memory to your computer's hard disk. Once on your hard drive you can print out the images, or edit them using image editing software. The camera's RS232 interface can be set to transmit data at varying baud rates, depending upon the capabilities of your computer. If the camera, while attached to your computer, remains inactive for a period of time greater than the Auto Power Off interval, it shuts down automatically.
- To use your camera as a USB PC camera (in PC only), attach the USB cable to the PC/Macintosh/USB Output port (or USB port) of the camera and the other end of the cable to the back of your PC.

Installing capture software

The appropriate capture drivers and software are required in order to download images from the camera to your computer.

To install the capture software:

1. Insert the CD-ROM disc or floppy disk driver into your computer's appropriate drive.
2. If you are running Windows 95 or Windows 98, select the Run command from the Start menu. When the Run dialog box opens, type E:\setup in the entry line and click OK, where E is the drive letter of your computer's appropriate drive. If you are on a Macintosh, double-click the installer icon.
3. The setup program begins, simply follow the on-screen instructions to complete the installation.

Fun Things You Can Do

- Videoconferencing (requires sound card, microphone and videoconferencing software).
- Capture video clips (no video capture card required).
- Send video clips with e-mail. Simply attach your captured clips with your e-mail messages.
- Create impressive presentations with video.
- Add clips to web pages.

Appendix 1: LCD Icons

Here is a list of all the icons that appear in the LCD panel and what they mean

LCD panel Icon Specification

Record Mode:

-  Record mode
-  Full Battery power
-  Medium Battery power
-  Low Battery Power
-  No Power
-  No Flash
-  Auto Flash
-  Self-Timer off
-  Self-Timer on
-  Fine Quality mode
-  Normal Quality mode
-  NTSC output
-  PAL output
-  EV Compensation
-  Pictures remaining

Play Mode:

-  Play mode
-  Full Battery power
-  Low Battery Power
-  No Power
-  NTSC or PAL output
-  Captured pictures

Menu Icon Specification

-  Erase one image from Camera storage
-  Erase All images from Camera storage
-  Self-Timer Off
-  Self-Timer On
-  Normal image quality
-  Fine image quality
-  NTSC video output
-  PAL video output

Appendix 2: Camera Specifications

Image Sensor:	COMS sensor 640 x 480 pixels
LCD Display:	Numeric LCD
Image Resolution:	640 x 480 pixels
Color:	24-bit (167 million colors)
Memory:	2MB internal flash memory
Lens:	Normal: 70cm - infinity,
White Balance Auto:	Auto (Day Light; Indoor Lighting; Fluorescent Lighting)
Built-in Flash:	Automatic, Off
Shutter Speed:	1 - 1/10000 sec (Auto)
Connectors:	AC adaptor, RS232 serial port, NTSC or PAL video output port, USB (Optional)
Weight:	< 120g (without batteries)
Dimensions:	95(H) x 65(W) x 35mm

**Design and specifications are subject to change without notice.*