INSTRUCTION MANUAL
CLASS B COMPUTING DEVICES

FCC ID: NHNDSC9Ø3Ø15ØØNZ

Use the provided shielded power supply cable so as not to interfere with radio and television reception. Also a shielded interface data cable must be used for video output port, parallel output port and serial output port to avoid causing Radio-TV interference Problems.
If you use other cables, it may cause interference with radio and television reception.

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 frequency energy and. if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guatantee 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 the equipment 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.

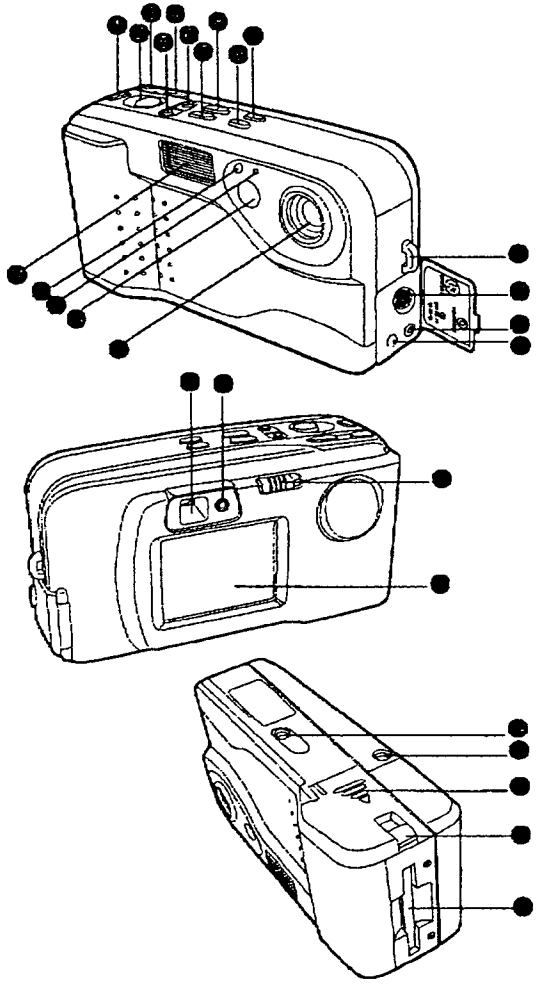
-- Increase the separation between the equipment and receiver.

-- Connect the equipment 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.

CAUTION: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

FCC ID: NHNDSC 9030/5000NZ



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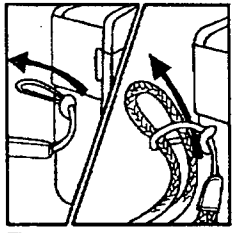
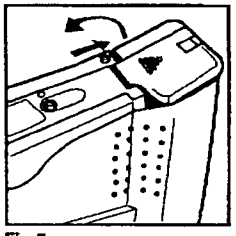


Fig.1



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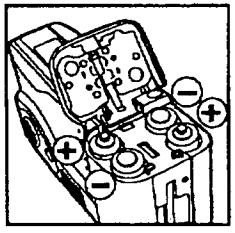

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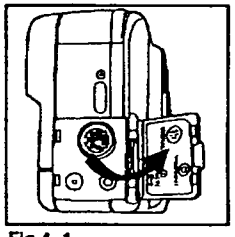

Fig.4 -1

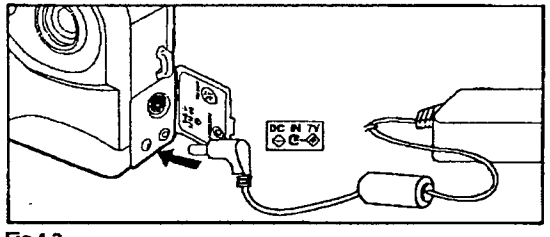

Fig.4-2

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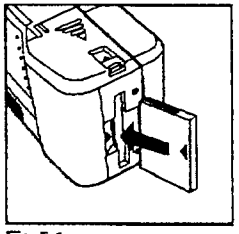

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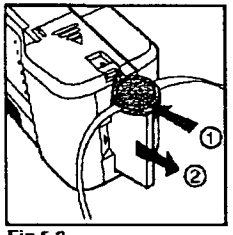

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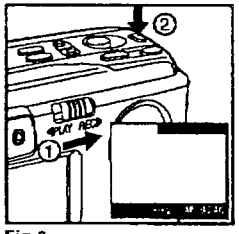

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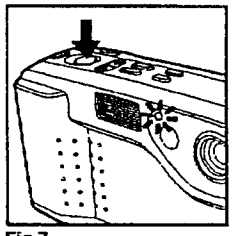

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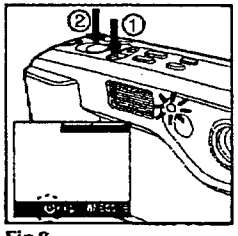

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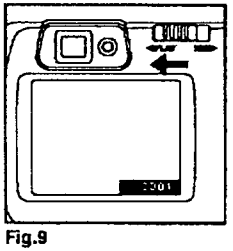

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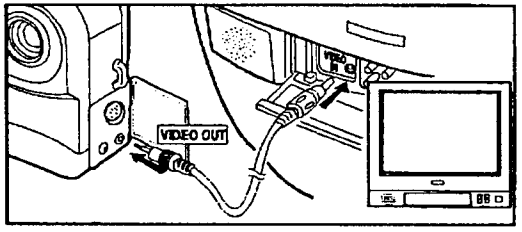

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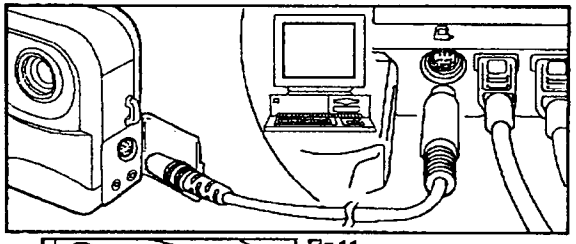

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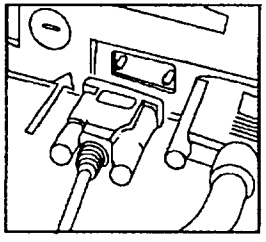


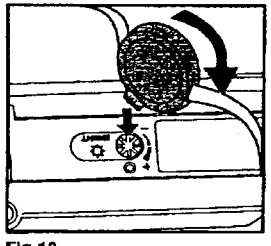


Fig.12

CONTENTS

NAME OF PARTS

- Power Button
- Shutter Release Button
- LCD ON/OFF Button
- ZOOM button
- Self/+Button
- Flash/-Button
- MENU
- ENTER/MACRO
- Icon Button
- QUALITY/MULTI
- Built - in Flash
- Self-time LED
- Flash control Sensor
- View finder window
- Lens
- Strap Eyelet
- Digital out put port
- Video out put port
- AC power socket
- View Finder Eyepiece
- Ready LED
- Playback/Recording Mode Switch
- LCD Panel
- LCD Brightness Control Dial
- Tripod Socket
- Battery Chamber Cover
- Compact Flash card slot
- Compact Flash card Ejector

Attaching the Strap (Fig.1)

1. Insert the small loop at the end of the Strap under the Strap Eyelet.
2. Insert the other end of the Strap through the loop to tie the Strap onto the Strap Eyelet.

Power Supply

This camera features a two-way power supply that lets you use either batteries (AA-size) or equipped AC Adaptor (optional).

Inserting the Batteries

1. Push the Battery Chamber Cover in the direction of the arrow to open it.**(Fig.2)**
2. Insert four batteries in the direction shown in. **(Fig.3)**
3. Close the Battery Chamber Cover by pushing it back until it latches with a click.

Notes:

* Never use manganese batteries.
* Your camera will not work if the batteries are inserted incorrectly.
* Remove batteries from camera if you will not use it for more than two weeks.
* Never mix old batteries with new ones.
* Never break up the batteries or dispose of in fire. It may cause the danger of explosion.
* Never mix batteries of different types.

Using AC Adaptor

To power the camera from AC power, use the optional AC Adaptor.

1. Open the Connector Cover by pulling it out. **(Fig.4-1)**
2. Plug in the Adaptor Jack. **(Fig.4-2)**

* Be sure to use the Equipped AC Adaptor only. Using any other AC adaptor may cause damage to the camera not covered by the warranty.
* When unplugging the AC Adaptor from the wall socket, be sure to grasp the plug (not the cord).
* Avoid undue bending, pulling, or twisting of the AC Adaptor Cord.
* If the power cord should become damaged (exposed wires, disconnection, etc.), please contact the store to purchase a new AC Adaptor. Use of a damaged power cord may cause fire or electrical shock.

* Be sure to Power-Off your camera before connecting or disconnecting the adaptor.
* The AC adaptor may become warm to the touch after extended periods of use.
  This is normal and is not cause for alarm.

Auto Power-Off

In case no buttons or switches are pressed for a certain period of time, the camera turns off automatically after the following period. Press POWER button to turn on the camera again.

Power source	Inactivity period
Battery	2 min.
AC adapter	30 min.

Equipping the CompactFlash Card

1. Insert the CompactFlash Card into the slot in the direction of the arrow by pushing it until it is firmly combined. **(Fig.5-1)**
2. To remove the CompactFlash Card, pushing the CompactFlash Ejector as shown. **(Fig.5-2)**
3. If the camera is powered-on without the card or with a unknown care, the "NO CARD" message appears on the LCD monitor.

Notes:

* Always keep Power-Off while equipping or removing the CompactFlash Card, or it may be damaged.
* All images are stored on a CompactFlash card inserted in the camera with the capacity up to 48MB. The camera does not have any resident memory for the image storage. The total number of stored images is varied with the free space of the card, the mixture of the image quality modes, and also the complexity of the subject. The following are examples of the reference number to be displayed on the LCD monitor in the Recording mode after the camera formats the card.

Image Quality	4 MB	8 MB	16 MB	32 MB	48 MB
Fine	10	20	40	80	120
Normal	20	40	80	160	240
Economy	35	70	140	280	420

* Note 1: The above-mentioned numbers may be different depending on the card actually used. The total number of images which can be stored in the card may be more than or less than the number.
* Note 2 : After capturing, depending on the subjects, the displayed number may not be always deducted by one.
* Note 3 : **SanDisk** and **Pretec** CF cards are recommended. Other brands/makers are not tested with the camera.

The camera displays "CARD FULL" if no more images can be stored in the rest of memory under the selected quality mode. When the displayed number is "0001" and try to capture a new image, the camera may display "RETRY" message after the shutter release. This means that the subject to be captured is too complicated to store in the rest of memory. In this case, a user may retry the capture under lower image quality mode.

The camera displays "? CARD" on the LCD in case the camera detects that no card, unknown card, higher capacity card is inserted. To use such card, it is first required to format it by the camera. (Caution : All data in the card will be lost by formatting.)

Camera Operation

Auto date & time

You can set the date and time on the camera, which can hold the information for about a few minutes even after the power source is disconnected. You can set to show or hide the date & time in the Menu screen. Please refer to Appendix C.

Recording Images

1. Select the Recording Mode by sliding the MODE switch to REC. position. **(Fig.6-●)**
2. Turn the camera on by pressing the POWER button.**(Fig.6-●)** It's ready for shooting after the READY LED stops blinking.
3. Compose the image from Optical Viewfinder or Equipped LCD Monitor. If LCD Monitor is off, push LCD Button to turn it on.
4. Press the Shutter Release button.**(Fig.7)** Just after the shutter release, the LCD monitor is turned off for a short period of time. Then the captured image is being displayed until the image processing is completed. Usually the Picture number is decreased by the shutter release, but it may not be depending on subjects to be captured.

* Take care of your fingers that not to block the lens or flash.
* Never open the Battery Chamber Cover, disconnect the AC Adaptor from the camera or unplug it from the wall socket while image processing. It may destroy the captured image.
* The newly captured image is always given to the next number of the current last number even some images are erased by Each Erase before capturing. In case the number reaches 9999, the camera displays "CARD FULL" message and it is required to erase stored images to capture new images.

Using Auto Flash

1. If sufficient Light Value is measured through the Flash Control Sensor, the built-in Flash will not fire.
2. If additional light is required, the built-in Flash will fire automatically.


Auto Mode
(automatic self activating flash)


Flash On Mode
(Fill In Flash, User decides to use flash)


Flash Off Mode
(User decides not to use flash)

Flash ON Mode

Daylight flash photography is effective for back-lighted subjects, strong shadows, or on cloudy days. It lets you take more natural looking pictures by softening harsh shadows. The flash effective shutter speed is from 1/3 to 1/1000 second.

1. Press the ϟ/- Button to make the Flash ON symbol is dis played on LCD.
2. Press the Shutter Release Button. There will be flash every time the shutter is released.

Flash OFF Mode

This mode forcibly prevents automatic firing of the flash and extends exposure time up to 1/3 second, thus allowing sufficient light photography in museums, churches, etc. where flash photography is prohibited.

1. Press the ϟ/- Button to make the Flash OFF symbol is dis played on LCD.
2. Press the Shutter Release Button and the shutter will be released with out flash.

Using the Self-Timer Mode (Fig.8)

This mode is not only for close distance but also for distant scenic pictures.

When taking a long distance scenic pictures, or night view evening scene using a slow shutter speed you can get a sharp, vibration free photograph by placing the camera on a tripod and using this mode.

1. Select the Recording Mode by sliding the Mode switch to REC position.
2. Select the Self-Timer mode by pressing the ⏲/+ button●. The Self- Timer symbol will show on the LCD Panel. This mode will be canceled by pressing the ⏲/+ button again, POWER button, or sliding the Mode switch to Playback mode.
3. Compose the picture through Optical Viewfinder or LCD Panel on a steady support or fixed on a tripod attached to the Tripod Socket.
4. Press Shutter Release Button●, the self-timer will start working. The red LED on the front of the camera will light steadily for ap proximately seven seconds, and then blink for about three sec onds to indicate that the shutter is to be released automatically.
5. After releasing shutter, the Self-Timer mode will be canceled.

* If you want to cancel the self-timer once it started, press the ⏲/+ button again or Power button.
* The self-timer can work together with Auto, Flash On or Flash Off mode.

Playback stored images (Fig.9)

1. Slide the MODE switch to "PLAY" position, the camera displays an image stored on the CompactFlash card.
2. Press ⏲/+ button to see the next image and ϟ/- button to see the previous one.
3. Pressing and holding (⏲/+ or ϟ/-) for over 2 seconds will forward (backward) the displayed image every 2 seconds automatically. Press this button again to stop.
4. If no images stored on the CompactFlash card, the message "NO IMAGE" is displayed.

* Until the card is replaced, the camera memorizes the last play-backed image at the power off and displays the same image at the next power on. If any images are captured in the Recording mode, the latest captured image is displayed.
* Only the images that recognized by the camera can be displayed. The Picture number displayed on the LCD is the number currently assigned to. It may be moved over after erasing some images.

Display Images on a TV Screen

Use the equipped video cable to connect the camera to a television, you can view the images on the TV screen.

1. Connect your camera and a TV from "VIDEO OUT" terminal of the camera into only to "VIDEO IN" terminal of the TV.(Fig.10)
2. Switch "Input Source" of the TV to "Video In" accordingly.
3. Make sure that the power of both the camera and the TV are pow ered on, then you can see the image on TV.

* Use only a TV equipped with "VIDEO INPUT" function.

Download Stored Images to Your Personal Computer

You can download stored images to your personal computer (PC) through the RS-232C/USB digital connector from proprietary software. The camera can receive the image data from a PC through the software, too. Separate cable is required for RS-232 or USB (optional) connection. You can find the accessories in your Connection Kit.

1. Turn off the power of the camera and the personal computer.
2. Plug one end of the serial cable into the COM port (or USB accordingly) of your computer.
3. Lift the Connector Cover of the camera.
4. Plug the other end of the serial cable into the camera's DIGITAL port.
5. Turn on the camera and personal computer, and execute the specific software. You are now ready to transfer the images.

System Requirement

Hardware

The following is the required system configuration:
IBM PC or 100% compatible, with a Pentium 60 MHz or higher CPU
At least 16 MB of available memory and 24 MB of available hard disk space
VGA/SVGA color display system, 640 x 480 resolution or higher, 256 color or higher 3.5" diskette drive to install this TWAIN Driver
CD-ROM drive to install the bundled graphics software

For faster processing and to display colors more accurately, we recommend the following system configuration:

Pentium 200 MMX CPU
32 MB or more of RAM
SVGA color display system, 16 million colors

Software

Microsoft Windows 95 or 98 environment.
Application Software must be compatible with TWAIN protocol.

System Requirements for MACINTOSH

System 7.5 or later
Power MAC
32 M RAM or above

LCD Brightness Control Dial (Fig.12)

The brightness of the LCD monitor can be adjusted by rotating this dial.

Creative Modes

Auto-Focus

The camera adopts the video AF mechanism. Lightly pressing the Shutter Release button activates and achieves the auto-focus operation. The focus is locked as long as this button is kept pressing (pre-focus operation is available in this way). Once the button is deeply pressed, the image is to be captured. The camera's focus range covers from 0.1 m to infinity. You can also set the fixed focus among 0.1 m, 0.5 m, and 2.0 m in the MENU screen, instead. Please refer to "MENU" button section.

Macro Mode

The camera provides the AF Macro mode and allows you to easily capture closer subjects. In the Recording mode, the ENTER/MACRO button allows you to easily capture subjects in the range of 0.1 m to 0.5 m.

Auto White Balance

The camera allows a user to select Auto (default) or Fixed white balance. Fixed white balance setting offers two modes: Daylight and Office-Light source.
Please refer to "MENU" button section.

Image QUALITY/MULTI button

Recording mode

The image quality can be selected among Fine, Normal, or Economy by pressing the QUALITY/MULTI button. This selection is retained until newly changed. The "F " or "E " appears as a prefix of the picture number to indicate the image quality mode of Fine or Economy. The Picture numbers may vary according to the image quality.

Image quality and resolution

Image Quality	Resolution
Fine	1360 x 1024 pixels
Normal	1360 x 1024 pixels
Economy	640 x 480 pixels

Playback mode
The camera can display 9 thumbnail images at a time on the LCD monitor by pressing the QUALITY/MULTI button. A selected image can be displayed in full size by pressing ENTER/MACRO button. When tried to display the next thumbnail to the right-bottom one, the next thumbnail is displayed at the left-up position, namely nine new thumbnails are displayed.

ZOOM button

Recording mode
By pressing ZOOM button, the camera will be in the 2x digital zooming mode until pressed again. If the LCD is on-status, the preview image is zoomed up on the monitor accordingly. After the shutter release, the captured image with 2x zooming is displayed on the LCD. Even the LCD is off, the image is captured in the 2x zoom mode. This mode can not function in case of the 9 sequential image capture.

Playback mode
The camera can zoom up a stored image by pressing the ZOOM button. Pressing again this button releases the zooming mode. An image captured with 2x zooming mode is automatically displayed in 2x zooming, and this button does not function.

ICON button

The ICON button makes some icons/indicators appear or disappear on the LCD monitor. The camera retains this status until presses this button again. Regardless of the status, the Self-timer icon always appears when set. This button can not wipe out the Battery icon when in the low battery condition. For the details of Icon displayed on the LCD monitor, please refer to Appendix B.

Recording mode
LCD monitor on-status
Pressing the ICON button toggles the display of the icons and indicators. Even they are hidden, the correspondent icon is displayed for the short period of time when you execute a certain action.

LCD monitor off-status
The ICON button can make the icons and indicators appeared on the black-back screen for a short period. Pressing the button again while they are displayed makes them disappear.
Playback mode
Pressing the ICON button toggles the display of the icons and indicators.

MENU button

You can set various camera configurations in the Menu screens to be shown by this button. The camera has different Menu screens for Recording and Playback modes. The Menu screen appears on the monitor even the LCD is off status. For the details of the Menu selections, please see the Appendix C.

Image erase / Erase protection

A user can erase any image individually or all images at a time. The images can also be erase-protected. When protected, they can not be erased until unlocked.
But they can be lost if the CompactFlash card is formatted. Please refer to "MENU" button section.

LCD button

The LCD button turns on and off the LCD monitor in the Recording mode. This button does not function in the Playback mode. In case of the LCD off-status, no preview image is shown on the LCD monitor. Even so, the camera shows icons/indicators on the monitor for the short period when a user changes any settings by pressing a button.
Your camera will hold the LCD display status at the power-off and follows the setting when powered on next time.

***Please refer to the Appendix A for the switches, buttons and interfaces operation.**

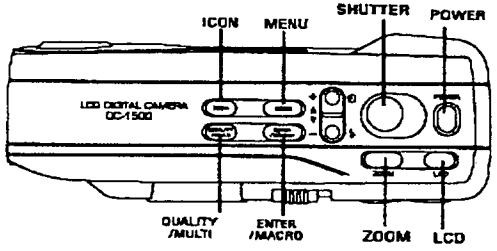
SPECIFICATIONS

Product Type:	Digital Still Camera
Imaging Device:	1/2-inch CCD, 1.5M pixels(total pixels), progressive scanning
Image Quality:	Fine/Normal/Economy
Image Resolution:	1360 x 1024 pixels (Fine / Normal); 640 x 480 pixels (Economy)
Recording System:	Digital (JPEG based)/Field recording
Recording Medium:	CompactFlash (up to 48MB). No resident memory included
Number of images:	About 10/20/35 images (F/N/E), when 4MB CF card is used
Image Capturing:	single or 9 sequential images, saved as one image file
Playback Modes:	Single or 9 thumbnails, Image search function available
Digital Zoom:	2x, both in Rec./Play
Shooting options:	Sharpness/Color
Erase Functions:	Single Image or All Images. Erase protection available
Video System:	NTSC or PAL optional
Digital Output:	RS-232C or USB, Serial cable for each interface is required
Lens:	f=7.0mm (f=40mm at 35mm Film Camera equivalent)
Aperture:	Fno=5.6
Focus Range (TTL):	Auto: 0.1m - Infinity AF Macro: 0.1m - 0.5m Fixed:0.1m, 0.5m and 2.0m are available
Exposure Metering:	Aperture priority AE
Exposure Range:	LV 6 to LV 16 at ISO 170
Flash Modes:	Auto/Fill/Off. Red-eye reduction available
Flash Range:	Built-in Flash, 0.5 - 2.3 m (ISO 170)
Exposure Compensation:	Max. +/-2.0EV, 0.25EV step
Shutter System:	Electronic programmable shutter
Shutter Speed:	1/3 to 1/3500 second
White Balance:	Auto/ Fixed (Daylight and Office-Light)
Self-Timer:	Electronic self-timer about 10-sec. delay.
Optical Viewfinder:	Real image type with 2x zoom and AF markings
LCD Monitor:	2-inch Full-color TFT LCD
Auto Date:	mm/dd/yy, dd/mm/yy, yy/mm/dd
Terminals:	DIGITAL, VIDEO OUT, DC in 7V
Power Source:	4 AA-size batteries (Alkaline, NiCd, Lithium) / AC Adaptor(DC 7V, 2.5A)
Operation temperature:	0 ~40 ° C 30~85% humidity
Dimensions:	133(W) x 71 (H) x 49 (D) mm
Weight:	253g (batteries excluded)

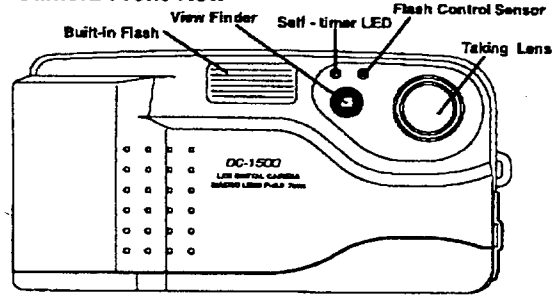
* Design and specifications are subject to change without notice.

Appendix A : Camera User Interface

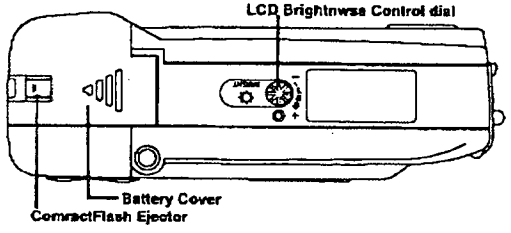
Camera Top View (TBD)



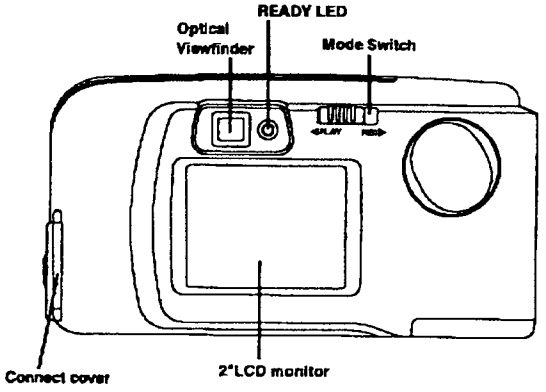
Camera Front View



Bottom of the Camera



Camera Back View



Side of the Camera