



Laboratory Equipment Manufacturer  
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INSTRUCTION MANUAL FOR  
**Digimage System**  
**GDS-01**



**PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION**

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## Un Packing list

### GDS-01

- 1 x Canon S5 IS digital camera package  
(Includes all the accessories and manuals; exclude a 32 MB memory card)
- 1 x camera adaptor
- 1 x 8" TFT color screen
- 1 x hood
- 1 x 1GB memory card
- 1 x Multi-card reader
- 1 x Power Cord for Camera Hood
- 1 x Power Cord for connecting Hood and UV Transilluminator
- 1 x Camera Holder with 4 ea of M3 screws
- 1 x Digimage operating manual
- 1 x Close up lens
- 1 x Lens adapter
- 1 x Ethidium Bromide filter or SYBR Green filter

### GDS-HD:

- 1 x camera adaptor
- 1 x 8" TFT color screen
- 1 x hood
- 1 x Power Cord for Camera Hood
- 1 x Power Cord for connecting Hood and UV Transilluminator
- 1 x Camera Holder with 4 ea of M3 screws
- 1 x Digimage operating manual
- 1 x Close up lens
- 1 x Lens adapter
- 1 x Ethidium Bromide filter or SYBR Green filter

**mrc is only responsible for all parts / accessories within 7 days after customer receives this instrument package. If any part is missing or damaged, please contact major science immediately. If no response within such time period from consignee party, that will be consignee party's whole responsibility.**

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Singed:

Date:

## Table of Contents

Un packing list	1
Packing list	2
Warning	4
Safety Information	5
Product Specifications	7
Product Description	8
<b>Introduction</b>	<b>8</b>
Overview	8
Controls and Features	9
<b>Installation Instructions</b>	<b>10</b>
Assemble Digimage System	11
Camera Set Up Menu	12
Installation with UV Transilluminator	16
<b>Operation Instructions</b>	<b>16</b>
Operating for Agarose Gel	16
Operating for X-ray film	18
Operating for Western Blot membrane	18
Troubleshooting Guide	19
Ordering information	20
Warranty	21

## **Warning**

Digimage System has been tested and found to comply with safety limits for the CE regulation. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended the user to read carefully the following points before this equipment is operated.

1. Read and follow carefully the manual instructions.
2. Do not alter the equipment. Failure adhered to these directions could result in personal and/ or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. In the event, solution is accidentally spilled into the hood, disconnect grounded plug and might turn instrument upside down to avoid solution contacting the internal components. Remove cover and inspect to assure solution has not contacted elements, thermostat or connector. Replace damaged parts.
6. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components, which may ignite such materials.
7. Refer maintenance and servicing to qualified personnel.
8. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to properly connect may create a fire or shock hazard.
9. The unit is Only operated by qualified personnel.

## Safety Information

Use the high level of precautions against any electrical device. Before connecting with the electrical supply, check the supply voltage is within the range stated at the rating label, and this device must be earthed. Place the unit in a safe, and dry location, and **MUST NOT** touch things in the surrounding. Also do follow the safety precautions for chemicals / dangerous materials. If needed, please contact a qualified service representative or [mrc@mrclab.com](mailto:mrc@mrclab.com)

## Environmental Conditions

Ensure the instrument is installed and operated strictly in the following

- conditions:  $\leq 95\%$  RH,
- 75 KPa-106 Kpa,
- Altitude not to exceed 2000 meters
- Ambient  $\sim 40^{\circ}\text{C}$  operating temperature.

## Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

Digimage System has been designed for use with shielded wires thus minimizing any potential shock hazard to the user. major science recommends against the use of unshielded wires.

To avoid electrical shock:

1. **NEVER** connect or disconnect wire leads from the power jacks when the power is on.
2. **WAIT** at least 5 seconds after stopping a run before handling output leads or connected apparatus.
3. **ALWAYS** make sure that hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
4. **ONLY** connect the power supply to a properly grounded AC outlet.

## Avoiding Damage to the Instrument

1. Do not attempt to operate the device if damaged.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight etc).
3. For proper ventilation, leave at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.

4. Do not operate the device in high humidity environments (> 95%), or where condensation may occur.

### **Symbol**

The symbol used on the Digimage System is explained below.



Used on the Digimage System to indicate an area where a potential shock hazard may exist.

Used on the Digimage System to indicate a warning. Consult the manual to avoid possible personal injury or instrument damage.

## Product Specifications

<b>Camera:</b>	Canon S5 IS
Effective pixels	Approx. 8.0 million
CCD	1/2.5" type CCD; Approx. 8.31 million pixels
Max field of view	29 x 22 cm
Image resolution	640 x 480 up to 3,264 x 2,448
Lens	6.0 (W) ~72.0 (T) mm
F / -number	f/2.7 (W)~f/3.5 (T)
File format	Design rule for camera file system and DPOF compliant
Focus-area selection	Five-area multi AF, manual selection available
Filter	Either one 58 mm Ethidium Bromide or one SYBR Green

- For detailed specification of Canon S5 IS Camera, please see P180 of Canon S5 IS Operating Manual

<b>Hood:</b>	
Multi power source	for camera, inner light lamp, TFT screen Inner white lamp x 2 tubes
Safety door switch	shut down UV Transilluminator while opening the operation door
Monitor	8" TFT liquid crystal screen
Display format	960 x 234 mm
Luminance	250 cd/mm
Display mode	NTSC/PAL mode switchable
Video and audio input	Yes
Hood dimension	290 x 220 x 320 mm (W x D x H)
Rated Voltages	110 or 220 Volt
Weight	4.0 kg



## **Product Description**

Digimage System uses a digital camera with 8.0 mega pixel resolution. It is computer free for compact space requirements and small budget. Viewing images from the large 8" TFT color liquid crystal display is it's specific feature. It is suitable to capture image for fluorescent gels, colorimetric gels, auto radiography film, and blotting membrane and others.

### **Feature :**

8.0 mega pixel digital camera

View image from a 8" TFT color monitor

Light weight compact hood with easy access door and inner build-in light lamps

Computer free to capture image

Contain safety door switch device

## **Introduction**

### **Overview**

mrc Digimage System is a very user friendly design for gel documentation purposes. It is a space compact instrument and having flexible options connecting with a computer for dealing with gel images just caught. Digimage System offers a competitive pricing with great value and convenience to the user. More Importantly, Digimage System is designed to comply with the CE regulation.

## Controls and Features

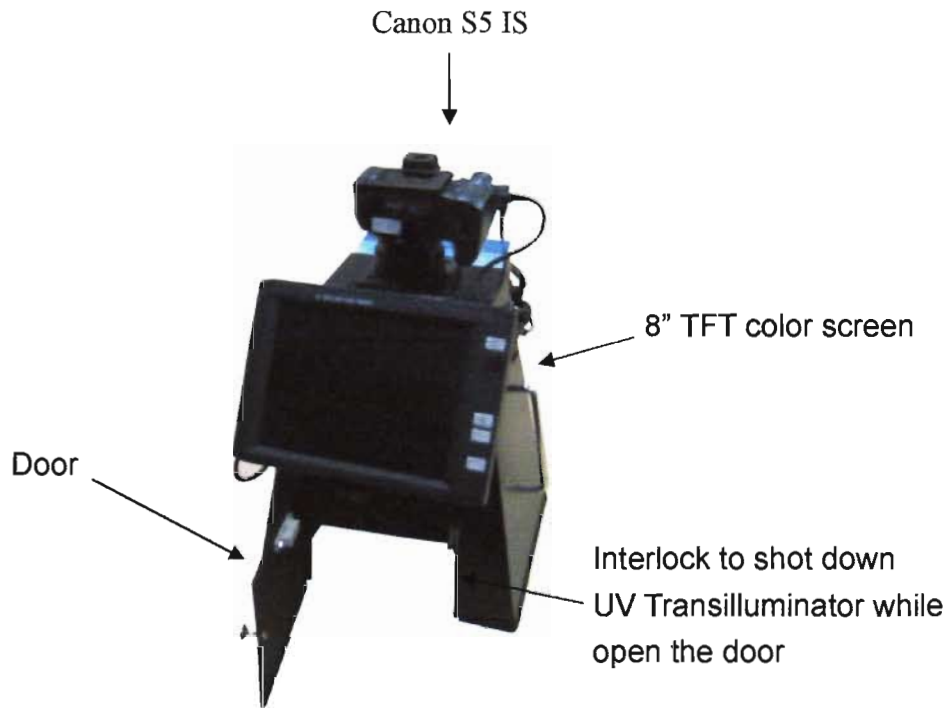


Figure 1

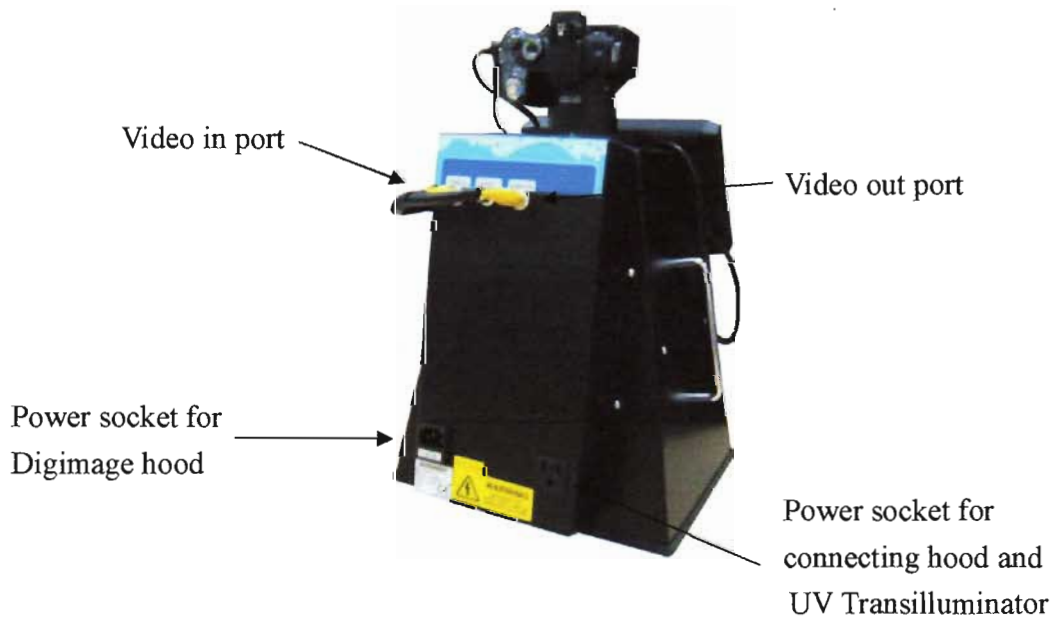


Figure 2

## Installation Instructions



1. UV Transilluminator (as Option Item)
2. Power Cord for Camera Hood
3. Power Cord for connecting Hood and UV transilluminator
4. 58 mm Close up lens
5. Camera Holder with 4 ea of M3 screws
6. Camera with Batteries
7. Hood with monitor
8. Lens Adapter
9. A 58 mm EtBR Filter or a SYBR Green filter

## Assemble Digimage System



1. Fix Monitor



2. Connect Cable



3. Fix Camera Holder



4. Fix Lens Adapter and Close up Lens on Camera



5. Insert Camera to Camera Adapter



6. Fix Camera



7. Connect S-video cable to the Camera

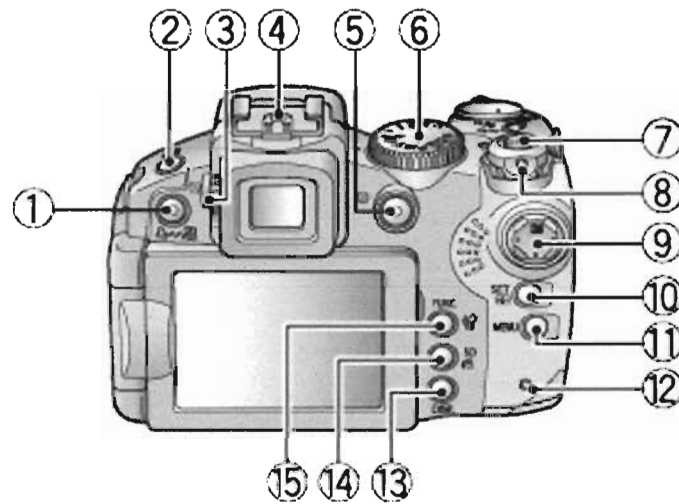


8. Connect power cable to the Camera



9. Plug in DC power In and Video Out

## Camera Set Up Menu




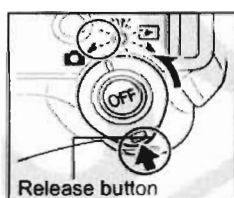
- ① (Print/Share) / (Shortcut)
- ② (Flash) / (Microphone) Button
- ③ Diopter Adjustment Dial
- ④ Hot Shoe
- ⑤ Movie Button
- ⑥ Mode Dial
- ⑦ OFF Button
- ⑧ Mode Lever
- ⑨ Omni Selector
  - ▲ (Up) / (Exposure) Button
  - ▼ (Down) Button
  - ◀ (Left) Button
  - ▶ (Right) Button
- ⑩ SET/ (AF Frame Selector) Button
- ⑪ MENU Button
- ⑫ Indicator
- ⑬ DISP. (Display) Button
- ⑭ ISO/ (Jump) Button
- ⑮ FUNC. (Function) / (Single Image Erase) Button

## Preparing the Camera

1. Before install camera, please review all function key on Basic Camera User Guide on page 1~3 in advance.
2. Installing the SD card as Basic Camera User Guide on page 6 (*Installing the Batteries are not necessary, because the GDS-01 contains a DC power supply, it can offer DC power for Camera used*).

## Camera Shooting Menu

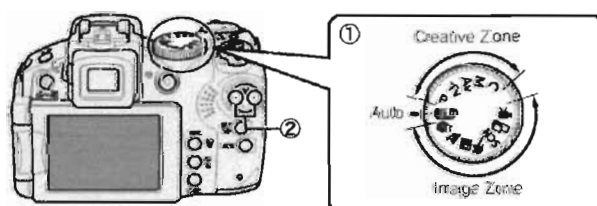
1. Turn the mode lever to  while pressing the release button. (Please see Basic Camera User Guide on page 7)



2. This camera is equipped with two modes (C and M) on Mode Dial Switch, allowing you to save two types of custom setting. The C mode will be for black& white photo and M for color photo

## For M setting (for Color photo)

- a. Use the mode dial to switch to M



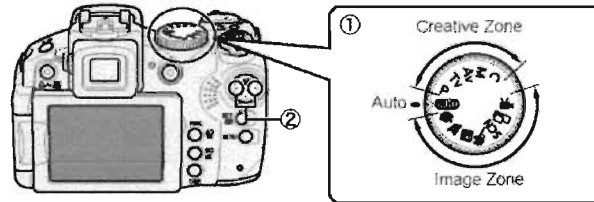
b. Press MENU to set some parameter as following :

Menu Item	Setting	Page on <u>Advance</u> Camera User Guide
FlexiZone	On	p. 71
Digital Zoom	Off	p.40
Flash Sync	1-st curtain	p.95
Red-Eye	On	p. 42
Self-timer	2 sec	Basic Guide p.18
Spot AE Point	AF Point	p. 78
MF-Point Zoom	On	p. 75
Safety MF	On	p. 76
AF Mode	Continuous	p. 72
AF-assist Beam	Off	----
Tally Lamp	Off	p. 51
Review	2 sec.	Basic Guide p.10
Reverse Disp.	On	Basic Guide p.6
Auto Category	On	
IS Mode	Continuous	p. 18, 44
Coverter	None	p. 171
Custom Display	----	p. 15
Set Shortcut button	----	p. 97
Save Setting	Press SET bottom and then save these parameters	p. 96



c. Continue to set C mode for Black and White photo as bellow procedure (Don't turn off the Camera)

**For Setting C (for Black and White photo)**

- a. After M have been set as above procedure.
- b. Switch the mode dial to the C mode



- c. Press FUNC. Key to change photo color as following (Please see Advance Camera User Guide on page 18)

FUNC. Item	Setting	Page on <u>Advance Camera User Guide on page</u>
AWB	N/A	p. 88
		p. 91
Flash Output	N/A	p. 94
Metering Mode	N/A	p. 78
Recording Pixels/ Frame Rate (Movies)	N/A	p. 53
Compression (Still image)	N/A	p. 39

Note : "Press FUNC. Key to set color is un-necessary on M Mode for Color photo"

- d. Press MENU bottom, and Save Setting for C Black & White Mode..



## For other “Camera Set up” Menu

- a. please see Advance Camera User Guide.

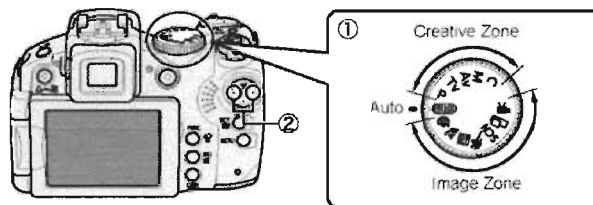
## Installation with UV Transilluminator

1. Move Digimage System to be on the top of UV Transilluminator.
2. Connect Power cord between UV Transilluminator and Digimage System.
3. Plug Hood’s power cord in 110 or 220V electricity.

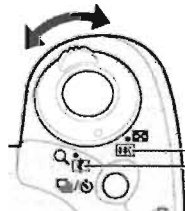
## Operation Instructions

### Operating for Agarose Gel :

- a. Switch on main power and light.
- b. Turn on Camera as *Basic Camera User Guide on page 7*
- c. Use the mode dial to switch to C (for Black/White photo)




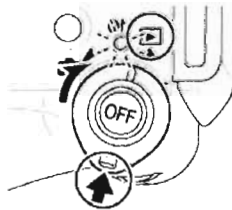
- d. Open the Hood door. (***The door contains a safety switch, the UV Transilluminator will auto off when door is opening.***)
- e. Put the gel on the UV Transilluminator.
- f. Switch off the light.
- g. Close the door.
- h. Switch Zoom lever to zoom in and out on image. (*Basic Camera User Guide on page 14*)




- i. Switch left or right on “Omni selector” (please see *Basic Camera User Guide on page 3 to looking for this key*) to change shutter speed (1/2000 ~ 15”). For this application, we advice to set 1” or longer.
- j. Switch up or down on “Omni selector” to change aperture value (F2.7 ~8.0). For this application, we advice to set F2.7
- k. You also could press ISO bottom (please see *Basic Camera User Guide on page 3 to looking for this key*) to change ISO value (ISO 80 ~ 1600). For this application, we advice to use ISO 80
- l. The specific feature for Canon Power Shot S5IS is, before capture image, you can preview the image from the display while you change shutter speed; aperture value or ISO value.
- m. Focus –Press the shutter-release button halfway to set focus and exposure. And then press shutter release bottom the rest of the way down to take the picture.



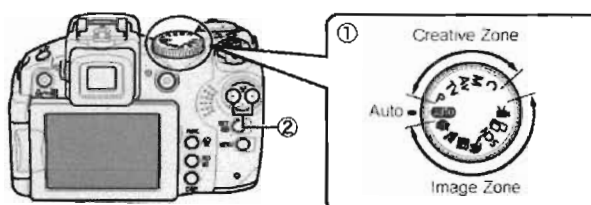
- n. Turn the mode level to  to view the pictures on the memory card full-frame in the monitor (see *Camera User Guide on page 122*)



- o. Press the DISP. Bottom to show the data for the displayed image.
- p. Press the FUNC.  bottom to quickly delete the displayed image.
- q. Finish capturing image, please switch Hood and Camera off.**
- r. Moving gel from Hood.

## Operating for X-ray film

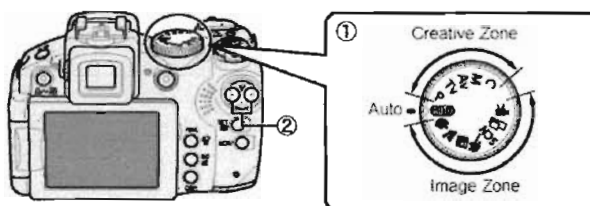
- a. Disconnect the wire cable between Hood and UV Transilluminator. (**Please ensure the UV Transilluminator is off.**)
- b. Move the hood to White light table.
- c. Switch off the light and turn on the white light table.
- d. Use the mode dial to switch to C (for Black/White photo)



- e. We advice the aperture is fixed on F2.7, change the Shutter Speed from 1/100, 1/200, 1/300....

### Operating for Western Blot membrane

- a. Disconnect the wire cable between Hood and UV Transilluminator. (**Please ensure the UV transilluminator is off.**)
- b. Hood builds in two while light lamps. Use these inner light lamps as a light source for this application.
- c. Use the mode dial to switch to M (for color photo)



- d. The aperture is fixed on F2.8, change the Shutter Speed from 1/10, 1/20, 1/30.

### Troubleshooting Guide

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, please contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Screen don't light on	If main power switch on There is a "Green" LED on the upper of right side. Please check if it is lighting on. If not, press "Screen power switch"
No Signal from Camera	Please check, if turn camera on. If power wire to camera connect well. If AV wire to camera connect well.
Light lamp don't light on	If switch on white light lamp.

## Ordering Information

<b>Cat. No.</b>	<b>Description</b>
GDS-01	1 x Canon S5 IS digital camera package (Includes all the accessories and manuals; exclude a 32 memory card) 1 x camera adaptor 1 x 8" TFT color screen 1 x hood 1 x 1G memory card 1 x Multi-card reader 1 x Power Cord for Camera Hood 1 x Power Cord for connecting Hood and UV transilluminator 1 x Camera Holder with 4 ea of M3 screws 1 x Digimage operating manual 1 x Close up lens 1 x Lens adapter 1 x Ethidium bromide filter or SYBR Green filter
GDS-HD	1 x camera adaptor 1 x 8" TFT color screen 1 x hood 1 x Power Cord for Camera Hood 1 x Power Cord for connecting Hood and UV transilluminator 1 x Camera Holder with 4 ea of M3 screws 1 x Digimage operating manual 1 x Close up lens 1 x Lens adapter 1 x Ethidium bromide filter or SYBR Green filter

**ACCESSORY**

GDS-LA	58mm Close up lens adapter
GDS-CL	58mm Close up lens
GDS-EB	58mm EtBR filter
GDS-SG	58mm SYBR Green filter

## Warranty

mrc warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for **two years from the shipping date to purchaser**. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. mrc's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to mrc within two years following the date of delivery of the product to the customer.