

LUMOS

Lumos Technology Co. Ltd.



可攜式顯微鏡相機
X·loupe™

User's Guide 使用指南

Digital Portable Microscope

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X·loupe™



Digital Portable Microscope

中文/English

User's Guide 使用指南

LUMOS

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FOR Canon IXY (IXUS) Camera

承奕科技

Please Read the following Safety Precaution before Using X-Loupe!

WARNING! To avoid the fire, electric shock, or severe injury, please obey the following instructions.

- 1.Keep X-Loupe and its accessories away from children and infants. Contact a doctor if any dangerous situation occurs.
- 2.Do not point X-Loupe directly at the sun or blazed light sources.
- 3.Keep X-Loupe away from water or other liquids. The usage of damped or drowned X-Loupe could result in fire or electric shock. Immediately turn off the power of X-Loupe and remove the battery, or unplug the battery charger or any electric adapter from the outlet.
- 4.Keep X-Loupe away from the heat source, and avoid its exposure to the direct flame or heat.
- 5.Do NOT disassemble, alter, or apply heat to the battery. Avoid any severe impacts which could damage the protective casing of the battery.
- 6.In case of any contact to the leaked substances from the battery, immediately flush the contacted skin, face, or cloth with large amount of water and ask for the medical assistance.
- 7.To avoid the fire, explosion, or injury, please keep battery terminals away from metal or magnetic materials.
- 8.Before you discard a battery, please use the insulation tape to cover battery terminals to avoid direct contact with other objects. Contact with metal or magnetic materials in waste container may result in fire or explosions.

CAUTION! If potential hazards are not eliminated, it may result in body injury, property/financial loss, and the malfunction of the product. The following instructions are also applied to the warning of unsafe operation.

- 1.Avoid strong impacts or shocks of the equipment. Do NOT strongly push the objective lens.
- 2.Do NOT use, place or store the equipment in a place with strong sunlight or high temperatures.
- 3.Avoid using the equipment under the airtight or airless condition; otherwise, it may result in short circuit, overheating, explosion, fire, burns, or other accidents. High temperature could deform the shape of casing.
- 4.If not using the equipment for a long period of time, please remove the battery from the equipment and the battery charger and store them in a safe place. Improper usage of the battery could make the battery exhausted in a short time.
- 5.The battery of X-Loupe is specifically designed to be charged by Canon battery charger. Please do not charge the battery with other branded chargers; otherwise, product breakdown, overheating, fire, electric shock, or body injuries might occur.
- 6.Before you move the equipment rapidly from a cold place to a hot place, please place the equipment inside a sealed plastic bag to allow its gradual adaptation with the ambient temperature, as well as to avoid the water condensation which might cause mechanical problems. Moving the equipment rapidly from a cold place to a hot place may cause condensation (water droplet) to form in the inside or on the surface of the equipment.

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Please Keep the User Guide for the Future Reference.

- ★While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions.
- ★Lumos Technology reserves the right to change the specifications of hardware and software described herein without prior notice.
- ★X-Loupe is protected by the following patents: Taiwan Patent No. M292708、M313792、M315340、M315354；Germany Patent No. Nr.202006001999.5; Japan Patent No.3120470; United States, China Patent Pending.

X-LOUPE G-SERIES

About Lumos X-Loupe G Series

X-Loupe, a portable inspection microscope camera, is composed of a digital camera and a microscope module. Three objective lenses with different magnifications are supplied to support its utilization under various circumstances. Each objective lens is equipped with self-supportive LED lighting, which makes this portable inspection microscope camera even more user-friendly. In addition to that, G-Series is equipped with high-end objective lens, low-angled lighting projected from various quadrants and alternative functional illumination...etc. G Series is also accompanied with the higher level of Canon digital camera, IXUS 800IS/950IS. Enjoy photography and micro-photography with one single X-Loupe.

For more information and downloading this user guide, please visit our website at <http://www.x-loupe.com.tw>. Please read the copyright declaration prior to the usage of any part of the content in this booklet.

Wish you have a wonderful experience on using X-Loupe.

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About Lumos X-Loupe G Series

【Attention】

Test-Shooting: Before taking pictures of any important subject, please do the test-shooting to make sure that X-Loupe is perfectly normal without any damage caused by shipping. In case of any problem, please contact your local distributor immediately.

Canon IXUS series camera has different names from country to country, and X-Loupe G Series currently runs well with following cameras:

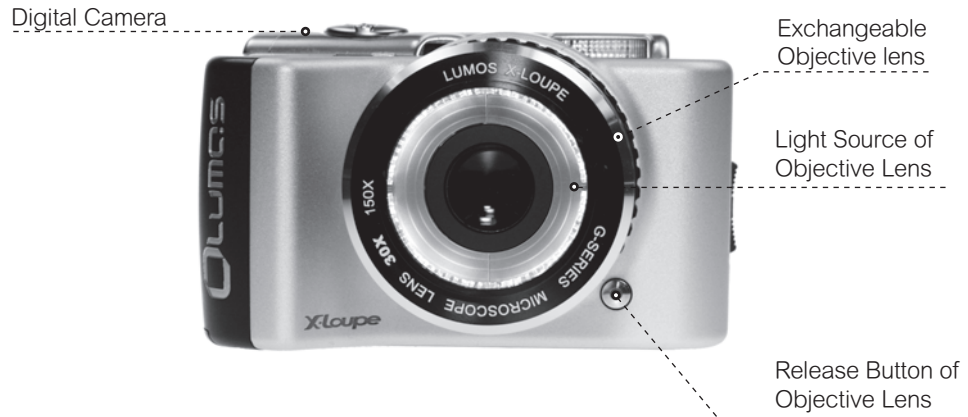
Comparison of the same camera with different names

IXY	800IS	950IS
IXUS	800IS	950IS
Powershot SD Series	700IS	850IS

X-LOUPE G-SERIES

Components

Front View



Back View



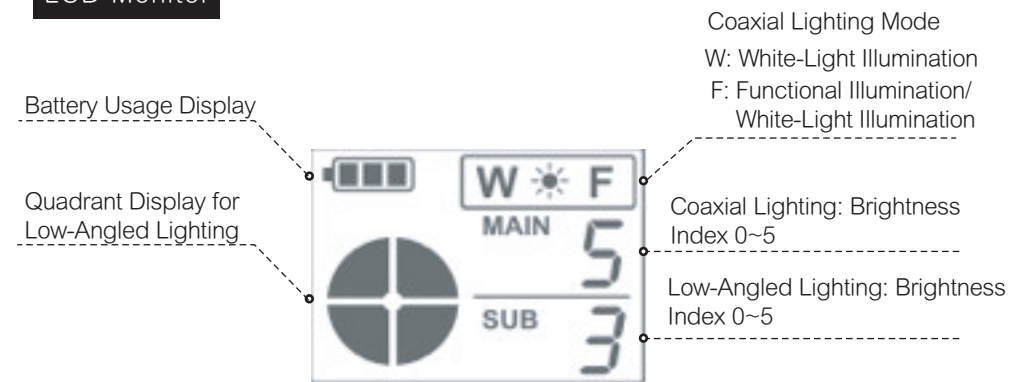
X-LOUPE G-SERIES

Components

Upper View



LCD Monitor



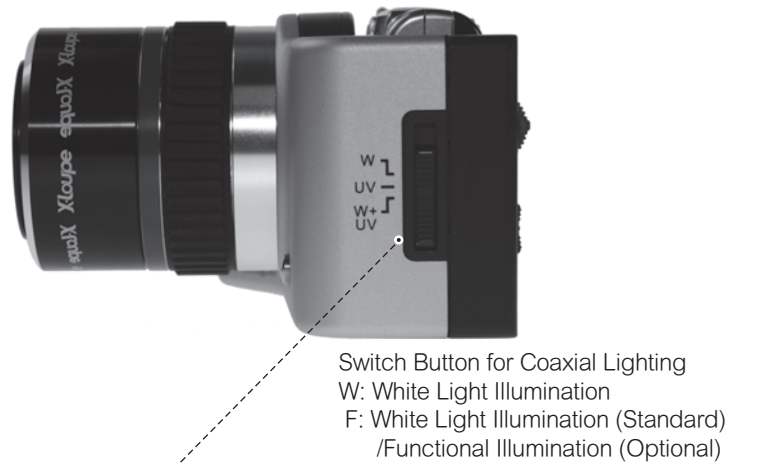
X-LOUPE G-SERIES

Components

Bottom View



Side View

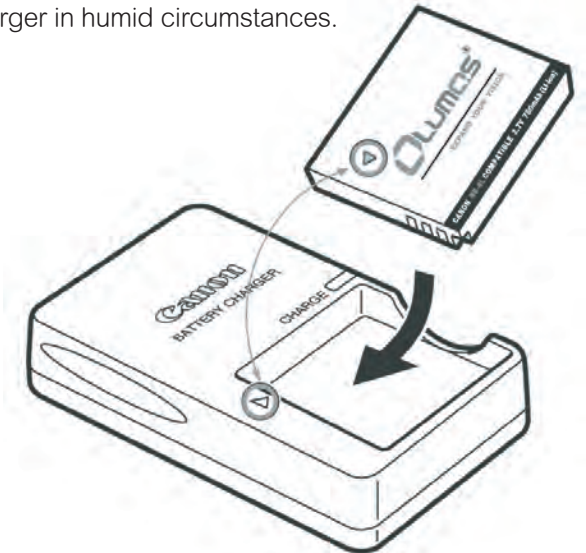


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Attention/Warning for the Battery Charging

Please go by following steps to charge the battery:

1. Align the arrow of the battery(NB5L) with the arrow of Canon battery charger, and insert the battery into the battery charger.
2. Plug the battery charger (CB-2LX) into the power outlet, or attach the power cord to the battery charger (CB-2LXE) and plug it into a power outlet. The charger indicator will light on. (Orange: charging the battery; Green: charging completed)
3. If the charger indicator does not light on after plugging the battery charger into the power outlet, please check the following:
 - a. Battery loose from the battery charger?
 - b. Does the power outlet switch ON?
 - c. Check other factors which might affect the power supply of the outlet.
 - d. Ask for the expert to inspect the power outlet.
4. Remove the battery when charging process is done.
5. Do NOT use the battery charger in humid circumstances.



X-LOUPE G-SERIES

Light Source

There are two different light sources provided by the objective lens of X-Loupe G Series: coaxial lighting (MAIN) and low-angled lighting (SUB). The coaxial lighting, located on the inner circle, is the direct-projection light coming out from 8 LEDs; whereas the low-angled lighting, located on the outer circle, is the lower-angled projection light coming out from the other 8 LEDs. The brightness indexes of both lighting are adjustable from zero to 5. The factory default setting of both lighting are ON and brightness index are set to 5.



Switch Button for Lighting Setting

- 【●】 Coaxial Lighting (MAIN)
- 【○】 Low-Angled Lighting (SUB)
- 【⊕】 Quadrant Setting of Low-Angled Lighting (SUB)



Tune Button

Adjust the brightness index of lighting by tuning the button up and down. By pressing the Tune Button, the brightness index becomes '3'. The quadrant setting of Low-Angled Lighting (SUB) is also controlled by the Tune Button when switch to Quadrant Setting of Low-Angled Lighting ⊕. By pressing the Tune Button, the light of upper left and right quadrants turns on.



Switch Button for Coaxial Lighting

There are 3 kinds of light sources: W (White), F (Functional Illumination), and W+F (White + Functional Illumination).¹



When the coaxial lighting is switched to W (White), 'W' is shown on the LCD monitor; whereas 'F' is shown when switching to F (Functional Illumination).¹

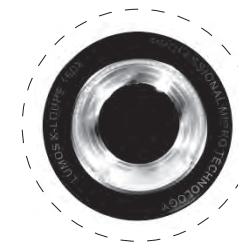
1. F (Functional Illumination) is optional and for the special order only, such as Ultraviolet Light. Unless otherwise mentioned, each objective lens is equipped with white-colored LED by default.

X-LOUPE G-SERIES

Light Source

In conventional micro-photography, taking a good picture is so difficult that most users have to be content with pictures of less-than-expected quality. G Series change the situation. Equipped with 2 different light sources (coaxial lighting and low-angled lighting), G Series provide more than 10 different lighting options. The flexible lighting options provide the capability to capture high-quality pictures for various and changeful subjects. Please refer to the following operation steps.

(1) Turn ON coaxial lighting; Turn OFF low-angled lighting.					
Steps	1	2	3	4	5
Selection	Switch Button for Lighting Setting	Tune Button	Switch Button for Lighting Setting	Tune Button	Switch Button for Coaxial Lighting
Illustration					
Description	Switch to Quadrant Setting of Low-Angled Lighting	Turn off light of all quadrants	Switch to Coaxial Lighting (MAIN)	Tune the brightness index as desired (1 ~ 5) (Check LCD monitor)	To switch between 4 and 8 LEDs. ²



The picture shown here is lighting with 4 white-light LEDs.

2. By default, the coaxial lighting is supported by 8 LEDs. Switching to W+F will turn on all 8 LEDs, while W or F only turns on 4 LEDs. By special order, the coaxial lighting can be equipped with 4 white-light LEDs and 4 Functional Illumination LEDs.

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Light Source

(2) Turn OFF coaxial lighting; Turn ON low-angled lighting(SUB).

Steps	1	2	3	4	5	6
Selection	Switch Button for Lighting Setting	Tune Button	Switch Button for Lighting Setting	Tune Button	Switch Button for Lighting Setting	Tune Button
Illustration						
Description	Switch to Coaxial Lighting	Tune the brightness index down to zero. (Check LCD monitor)	Switch to Low -Angled Lighting	Tune the brightness index as desired (1 ~ 5). (Check LCD monitor)	Switch to Quadrant Setting for Low-Angled Lighting	Select which quadrants to turn on

(3) Turn ON low-angled lighting. Nine different photo effects taken by turning on various quadrants of light are shown below.

			All quadrants are ON Picture looks FLAT; useful when shooting the flat object
			Upper and Lower Right are ON
			Lower Right and Left are ON

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Light Source

			Upper and Lower Left are ON
			Upper Left and Right are ON
			Upper Right is ON
			Lower Right is ON
			Lower Left is ON
			Upper Left is ON
			Light Source is OFF No Image

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Assembling



As picture shown on the left, tuck Canon digital camera into X-Loupe module.



Make sure that the left and bottom edges of the Canon digital camera are in close contact with X-Loupe module.



Make sure that the screw hole on the bottom of the module is aligned with the tripod socket of the camera. Insert the screw into the hole.



Rotate a coin clockwise to tightly lock the screw. Please make sure that both Canon digital camera and the module are well locked.

To disassemble X-Loupe module from Canon digital camera, rotate a coin counterclockwise. Pay attention to both camera and module to prevent them from falling. Please store the screw in a proper place. It is advised to put it back into the carrying case.

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Assembling



Hold the camera and module in one hand and take the objective lens with the other hand. Align the red dot on the objective lens with the other red dot on the module.



Attach the objective lens to the module.



Rotate the objective lens clockwise until the sound, 'ka', is heard. Do not over-rotate the objective lens.



For the safety purpose, please make sure that the objective lens is not loose.



To change the objective lens, press the release button and rotate the objective lens counterclockwise for 45 degrees. Easily and softly disassemble the objective lens from the module. Do not over-rotate the

objective lens. Repeat above procedures to assemble another objective lens onto the module.

Taking pictures for a flat subject



Put the contact ring on the objective lens before shooting.



Have the contact ring closely touched the surface of the subject. Slightly press X-Loupe on the subject to reach the best working distance, and press the camera shutter halfway to focus. The AF (autofocus) green frame(s) should show up when the camera focuses. Fully press the camera shutter to shoot. Any shaking or vibration should be carefully prevented during shooting.

Taking pictures for a non-flat subject (1)



The contact ring is not essential in this scenario unless the surface of the subject is vulnerable and easy to be scratched.



Aim the camera at the subject. Hold the objective lens by two fingers. Slightly move around the camera up and down to reach the best working distance, while pressing the camera shutter halfway to focus. When the AF (autofocus) green frame(s) is shown on the camera, fully press the camera shutter to shoot. Any shaking or vibration should be carefully prevented during shooting.

Taking pictures for a non-flat subject (2)



The barrel part of the objective lens can be removed by rotating it counterclockwise and vice versa for the assembling.



Keep rotating the barrel until it is removable from the objective lens.



To keep a stable pose without the assistance of the contact ring and barrel, please use two fingers to uphold the objective lens with another finger touching the subject surface gently. Move the camera up and down slightly to reach the best working distance. Press the camera shutter halfway to focus. When the AF (autofocus) green frame(s) is shown on the camera, fully press the camera shutter to shoot. Any shaking or vibration should be carefully prevented during shooting.

X-LOUPE G-SERIES

Notice and Preparation before Using the X-Loupe

When the X-Loupe is assembled, please do the following procedures to enjoy using the X-Loupe.

1. Insert the appropriate Canon IXUS battery and the memory card.
2. Select the objective lens as desired and assemble it onto the X-Loupe module.

How to choose the objective lens?

- ◎Field of view: The larger magnification, the smaller field of view and vice versa.
- ◎Moving speed of the object: The faster the object is moving, the objective lens with smaller magnification should be used in order to obtain clearer pictures. This strategy is useful when taking pictures for a living thing such as insects and the earthworm.
- ◎Depth of focus: The larger magnification, the smaller depth of focus and vice versa.

3. Turn on X-Loupe and Canon IXUS camera. The lens of camera should stretch out now, and what is observed from the LCD monitor on the rear side of the camera will be a vignette image. Don't worry, it's normal. This means that the assembling of X-Loupe module and the digital camera is successful.
4. Zoom in Canon camera until 4.0X, the standard optical zoom value for operating the X-Loupe G Series. (If digital zoom setting is turned off, the sign of 4.0X will not display on LCD.)



5. Please turn OFF the flash light of the camera while using X-Loupe.
6. Macro and Infinity Shots Mode of the camera is not compatible with X-Loupe.

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Basic Skills for Micro-Photography

1. Except the Macro and Infinity Shots Mode, all functions of Canon digital camera are compatible with X-Loupe and function well. To get the best performance from X-Loupe, please take some time to get familiar with the operation and functions of Canon digital camera. 📷📷

2. Focus:

The auto-focus function of Canon camera at optical zoom factor 4X is very sensitive and clever. However, while using a higher zoom factor, it is getting harder to focus the subject automatically. This is because any tiny vibration (such as your pulse) is magnified with the increasing of the zoom factor. Please use a tripod stand if clear pictures can not be obtained by following the instruction of X-Loupe G20 Shooting Strategy.

It may be difficult to focus on the following types of subjects.

- Subjects with extremely bright objects at the center of the composition.
- Subjects which are moving quickly.
- Subjects under/behind glass.
- Subjects which will reflect the light.

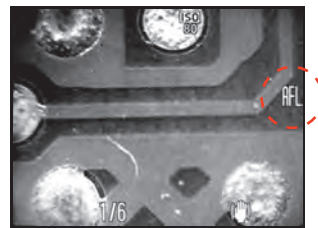
Basically, the focusing function of X-Loupe is Auto Focus as same as Canon camera's. Press the shutter button halfway to focus (Focus Lock), keep the button pressed, re-aim the camera to compose the shot as desired and press the shutter button fully.


- AiAF Focusing Mode
- Suggestion: Turn OFF



Reason: Take IXUS 950IS as example, please refer to the Advanced Camera User Guide Shooting-Switching between Focusing Mode p.49. In most cases, the purpose of micro-photography is to take pictures on a specific part of a subject. During the shooting process, that specific part is usually moved to the center of the LCD monitor. The camera will only focus at a central AF (autofocus) frame area when AiAF is turned OFF.

This is convenient for focusing on a specific part of a subject with greater certainty. Hence, all the user has to do is to move X-Loupe up and down searching the best working distance and find the best focus. This focusing mode is more appropriate for micro-photography. If AiAF is turned ON, X-Loupe might find many auto-focusing spots which are not necessarily wanted. This situation occurs frequently on taking pictures for a non-flat subject.



Shooting with the Auto Focus Lock (AF Lock), press the shutter button halfway and press the button . The AFL icon will display on the right of camera LCD monitor. The AF lock is convenient because you can let go of the shutter button. In addition to that, the AF lock is still effective after the picture is taken and it allows you to take the next picture with the same focus. It is suitable to use when the X-Loupe is mounted on the stand, just rotating the knob of the stand and taking the pictures as desired. Please refer to IXUS 950IS Advanced Camera User Guide P.51 and P.52.

3. Continuous Shooting and Self Timer:

To take pictures for a living thing such as insects, it is suggested to use Continuous Shooting Mode, and then pick the best one from shooting. For IXUS 950IS, please refer to Advanced Camera User Guide P.37.

Using the Self-Timer in micro-photography can prevent the shaking while you press the shutter button. Besides 2sec and 10sec Self-Timer, you can also change the delay time and number of shots (i.e. Customer Timer). For IXUS 950IS, please refer to Basic Camera User Guide P.16~17.

4. Zoom:

A subject can be zoomed approximately up to 16X, using the combined digital (4X) and optical (4X) zoom. When the zoom is set higher than the 4X optical zoom (where the digital zoom will be used), there might be some noises and the sawtooth-like stripes showing on the LCD monitor with only 0.23 mega-pixels resolution. It is better to inspect the subject from LCD monitor when the digital zoom is used. When a picture with good quality is needed, please use only the optical zoom on shooting to get better result.

The Digital Tele-Converter, pp.33~34 in the Advance Camera User Guide of Canon IXUS950IS, allows users to mimic the effect of telephoto by using digital zoom. The focal length is 1.6X or 2.0X increased, which is good for taking pictures both from the short and long distance. The Digital TeleCoverter can also improve the magnification of X-Loupe. For example, with 300X objective lens of X-Loupe and 2.0X Digital Tele-converter, the magnification is 600X.

5. Distance:

In micro-photography, any tiny minor vibration (such as the pulse) can have some influences on picture quality. To acquire maximum stability, the working distance of X-Loupe was designed to approach the subject, like

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Basic Skills for Micro-Photography

the conventional microscopy. Sometimes, moving X-Loupe up and down a little bit can reach the best focus. The AF (autofocus) green frame(s) on the LCD means good focus, whereas orange means close to the focus but not good enough.

	Working Distance	Depth of Focus
60x	4~4.43cm	1.8mm
150x	1.1~1.3cm	0.8mm
300x	0.8cm	0.25mm

6. Movie:

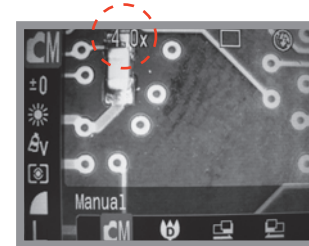
Due to the large size of a movies file, please use 512MB SD card or above to avoid losing the important scene. The 1.6X and 2.0X of Digital Tele-Converter are not available for the movie function.

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Canon Digital Camera Basic Setup – Micro-Photography

Although X-Loupe G Series work together with Canon IXUS 800IS/950IS digital cameras, the factory default setting of IXUS 800IS/950IS is not meant to be used in the micro-photography. Therefore, the camera settings have been altered to meet the micro-photography requirement prior to its shipping. Please refer to the following list and explanation.

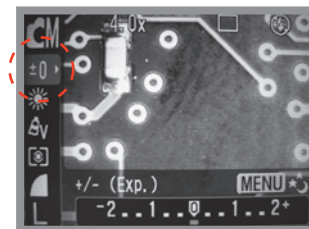
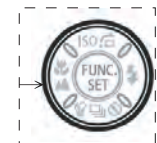
Pictures shown here are based on Canon digital camera IXUS 800IS and for reference only.



Adjust the Zoom to its maximum optical value, 4.0X. (This is the standard setting for X-Loupe.)



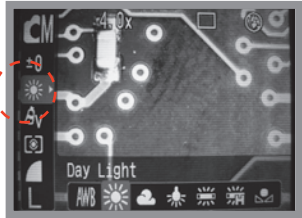
The Manual Mode is required for micro-photography. Please do NOT use Macro or Infinity Shots Mode.



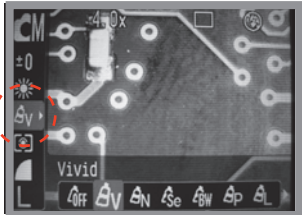
Set the Exposure Compensation to zero and the range is from -2 to +2. The shutter speed (Long Shutter Mode) can be set as high as 15 seconds.

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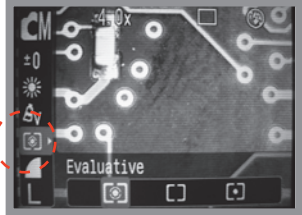
Canon Digital Camera Basic Setup – Micro-Photography



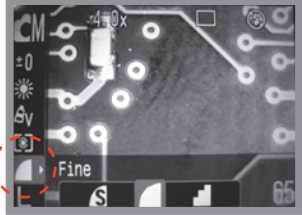
Using the Light Source of X-Loupe
The White Balance is set to Day Light Mode (5000~6000°K) in accordance with the 6000°K light source of X-Loupe. If using light sources other than X-Loupe, please refer to Canon User Guide.



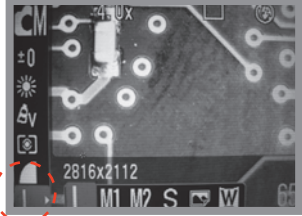
The image of a partial subject in micro-photography may have difficulty to differentiate due to some special properties of that subject. Using the Vivid Mode could improve the effect of image to get better inspection result. If the Vivid Mode can not reach the expected result, try other Modes.



In micro-photography, the camera has to approach closely to the subject, and the focal area is magnified many times. Using Evaluative Metering Mode could help the system to grab more information and get more precise Shutter Speeds.



Please set the Compression to Fine. (Altering this setting would change the image file size.)

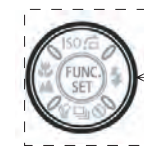


Set the Recording Pixels value according to the output media. For instance, choosing higher Recording Pixels value if the picture is for printing. (Altering this setting would change the image file size.)

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Canon Digital Camera Basic Setup – Micro-Photography

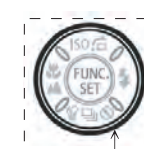
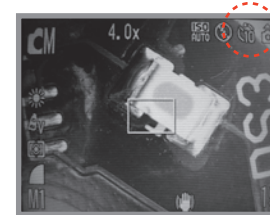
Note: Turn OFF the flash light for micro-photography.



Please keep in mind that the flash light is easily turned ON while the position shown here is accidentally pressed by the thumb.



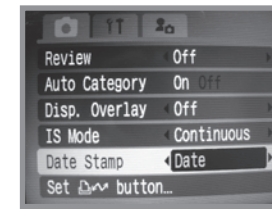
Single shooting is the default setting. (IXUS 800IS/955IS is equipped with image stabilization function) In a circumstance where stable posture is hard to maintain or the subject is moving or trembling, please choose Continuous Shooting Mode to take more pictures to get better results.



Canon IXUS series is not compatible with the shutter cable release. To reduce the influence of vibration during shooting, please use Self-Timer for better performance. Please refer to Canon User Guide for more details.



1. Only under the Postcard Mode can the information of date and time be embedded into the picture.



2. Turn ON the Date Stamp to have the information of time and date embedded into the lower-right corner of the picture.

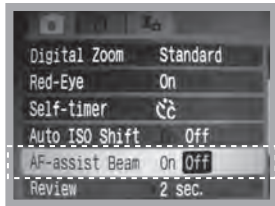
X-LOUPE G-SERIES

Canon Digital Camera Basic Setup – Micro-Photography



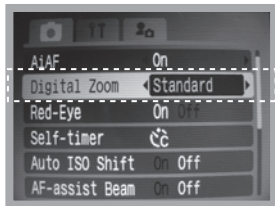
Suggestion: Turn OFF

Explanation:In most cases, the purpose of micro-photography is to take pictures on a specific part of a subject. If AiAF is turned off, the camera will find its focus at a central AF (autofocus) frame, and the best focal distance can be found by simply moving the camera up and down. The camera will automatically find more than one focal positions while AiAF is turned on, but some of the focal positions may not be necessarily wanted. Nevertheless, AiAF can be utilized depends on the practical demand.



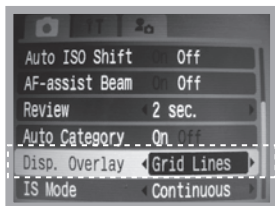
Suggestion: Turn OFF

Explanation:AF-assist Beam is located at the front side of the camera, and is used in the dim environment by pressing the shutter halfway. Since AF-assist Beam is blocked by X-Loupe module and X-Loupe is equipped with its own light source, AF-assist Beam should be turn off.



Suggestion: Turn ON

Explanation: For inspection purpose, the bigger digital zoom you use, the less picture quality you get. However, it helps users to view the subject in an easy way. For micro-photography purpose, suggest to use optical zoom only (i.e. 4.0X for IXUS 800IS/950IS) to have better picture quality. Then inspect the digitalized picture with larger magnification on the PC monitor.



Suggestion: Set as desired

Explanation:In some circumstances, it could help to decide the composition of an image with Grid Lines ON.



Suggestion: Hold

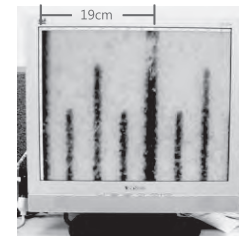
Explanation:The micro-photography is utilized on the inspection and photography of a tiny part of a subject; hence, the review of every picture is very important. If the review is not set to Hold, pictures can only be inspected or deleted after switching to Play Mode.

X-LOUPE G-SERIES

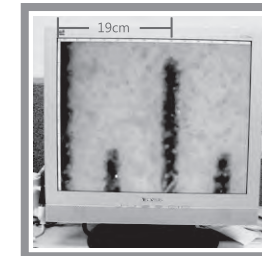
Digital Magnification of X-Loupe

The digital magnification of X-Loupe is calculated based on 17 inch LCD monitor with the resolution of 1024 X 768 dpi, and the digitalized picture displayed at 1:1 (100%) ratio. Please refer to some tests shown below:

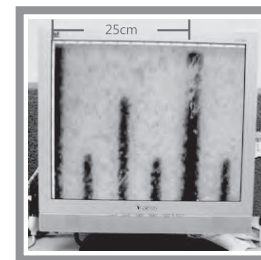
Camera Unit: X-Loupe G Series module + 150X objective lens + IXUS950IS
 Monitor: ViewSonic VE720m 17 inch LCD
 Monitor Resolution: 1024 X 768 dpi
 Camera Recording Pixels: 2592 X 1944 dpi (5.2 mega pixels)
 Optical Zoom: 4X
 Subject: 1mm Ruler (The smallest scale is 0.25mm)



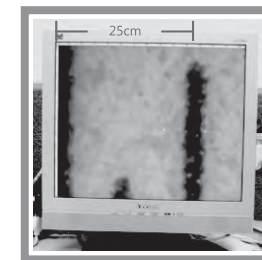
Camera Recording Pixels: 2592 X 1944 dpi (5.2 mega pixels)
 The length of 1mm on the picture showing on the monitor is 19cm→
 Magnification = 190X



Camera Recording Pixels: 2592 X 1944 dpi (5.2 mega pixels)
 Digital Tele-Converter: 2.0X
 The length of 0.5mm on the picture showing on the monitor is 19cm→
 Magnification = 380X



Camera Recording Pixels: 3264 X 2448 dpi (7.99 mega pixels)
 The length of 1mm on the picture showing on the monitor is 25cm→
 Magnification = 250X



Camera Recording Pixels: 3264 X 2448 dpi (7.99 mega pixels)
 Digital Tele-Converter: 2.0X
 The length of 0.5mm on the picture showing on the monitor is 25cm→
 Magnification = 500X

1. For the troubleshooting of IXUS camera, please refer to the Advanced Camera User Guide of IXUS.
2. The LED in the objective lens is not bright:
 - a. Check the battery power.
 - b. Disassemble the objective lens and assemble it back to the module again. Make sure that the assembling of the objective lens with X-Loupe module is correct.
 - c. Check the brightness index of both coaxial lighting and low-angled lighting. Make sure that they are not set to zero.
 - d. In order to inspect, make sure that all quadrants of the low-angled lighting are turned on.
3. Error message shown on the IXUS camera monitor and the lens of Canon camera can not stretch out or retract:
 - a. Turn off the camera power to make the lens retract. Disassemble Canon camera from the X-Loupe module, and turn on the power of the camera again. The lens of the camera should be able to stretch out.
 - b. Do NOT try to fix the camera lens by force because it might void the warranty. Please contact your local distributor if the problem could not be solved by yourself.
4. No display on the LCD monitor of X-Loupe module:
 - a. Please re-press the power switch of the module again.
 - b. Remove the battery and insert it into the module again.
 - c. Check the battery power of the module.
 - d. Disassemble the objective lens from the module, and press the power switch again.

5. Could not see the full field of view on the camera monitor:
 - a. Please adjust the Zoom of the camera to 4.0X so that the full field of view can be obtained.
 - b. Check the camera lens and make sure that the lens is able to stretch out and the function of Zoom is working.
6. Out of Focus:
 - a. X-Loupe is a contact-based digital microscope; please do not try to take the picture outside its working distance.
 - b. Adjust the direction or posture while shooting pictures.
 - c. Press the shutter halfway and adjust the distance between the subject and objective lens to reach the best focus.
7. The battery is fully charged, but lasts for shorter and shorter time:

The lithium battery can only be recharged for certain amount of times. Please purchase a new battery from your local distributor.
8. Hardware malfunctions such as slipped power switch or fatigue pin:

Please contact your local distributor or call our customer service for assistance.

In case of any question, please contact your X-LOUPE dealer, or email : service@lumos.com.tw



Certificate of Test

We hereby certify that Certificate No. 666 019
 Equipment: Digital Portable Inspection Microscope
 Model No. X-Loupe G20S
 Applicant: Lumos Technology Co., Ltd.
 7F, No. 8, Wanhe St., Taipei 116, Taiwan, R.O.C.

is in compliance to the European Council Directive
 89/336/EEC, 2004/108/EC
 and keeps all requirements according the following regulations
 EN 55 022; 1998 class B, A1:2001, A2:2003
 EN 55024:1998, A1:2001, A2:2003
 IEC 61 000-4-2 :2003/ 4-3:2004/

Name of Laboratory: Consolidated Testlabs(TW)NCo., Ltd.
 Issue Date : March, 12, 2007
 Approved by: James Sung

Managing Director

This certification shall not be reproduced without the written approval of the laboratory.
 The certification is valid only in accordance with the test report No.666 019
 The confirmation is valid only if the product is manufactured in accordance with the test report.

FCC CLASS B COMPLIANCE REPORT (DOC)

Equipment Under Test : Digital Portable Inspection Microscope
 Model No. : X-Loupe G20S
 Applicant : Lumos Technology Co., Ltd.
 Manufacturer : Lumos Technology Co., Ltd.
 Address of Applicant : 7F, No. 8, Wanhe St., Taipei 116, Taiwan, R.O.C.

Standards:
 EN55022 : 1998 Class B
 EN55024 : 1998 : IEC 61000-4-2 : 2003, IEC 61000-4-3 : 2004

In the configuration tested, the EUT complied with the standards specified above.

Remarks:
 This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
 This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Matrix EMC Services or testing done by Matrix EMC Services in connection with distribution or use of the product described in this report must be approved by Matrix EMC Services in writing.

Tested by : Date : March, 12, 2007
 Ivan Tang

Approved by : Date : March, 12, 2007
 James Sung



Declaration of Conformity

EQUIPMENT : Digital Portable Inspection Microscope
 TYPE : X-Loupe G20S
 Series Number : NA

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility (89/336/EEC) and the amendments in the Council Directive 91/263/EEC, 92/31/EEC, 93/68/EEC.

For the evaluation of above mentioned Directives, the following standards were applied.

EN 55 022:1998 Class B A1:2000 A2:2003
 EN 55024:1998 A1:2001 A2:2003
 IEC 61000-4-2:2003, IEC 61000-4-3:2004

The following manufacturer is responsible for this declaration:

Lumos Technology Co., Ltd.
 7F, No. 8, Wanhe St.,
 Taipei 116,
 Taiwan, R.O.C.

April, 12, 2007

Signature Manufacturer



DECLARATION OF CONFORMITY

According to ANSI C63.4 & FCC Part 15B Regulation and CISPR 22
 (Tested to comply with FCC Standard)

Product Name: Digital Portable Inspection Microscope
 Model No: X-Loupe G20S
 Manufacturer: Lumos Technology Co., Ltd.
 Address: 7F, No. 8, Wanhe St., Taipei 116, Taiwan, R.O.C.
 Issue Date: April, 12, 2007

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.

Responsible party for marking this Declaration:

Company (Manufacturer / Importer)

Name: LUMOS TECHNOLOGY CO.LTD
 Address: 7F, No. 8, Wanhe St., Taipei 116, Taiwan
 Tel: TEL:(02)2230-1168
 Fax: FAX:(02)2230-3112

Apr. 23, 07
 Taipei, Taiwan

 Manufacturer / Authorized representative name and signature