

# X-Loupe™ *To See Is To Believe*

In order to meet the trend of 'scientific and technological miniaturization', enhancing the production and testing process is a must. When the precise-sized products are successfully manufactured, quality inspecting at the microscopic level is needed at the same time. However, the naked eye can never match the rapid scientific and technological development in miniaturization. Therefore, innovative apparatuses that extend limited eyesight now become essential.

Foreseeing the needs for miniaturized products, the X-Loupe™ G20 delivers 'Microscopic Quality Control' to achieve precision and efficient work execution, thus infusing new energy into "micro inspection".



**X-Loupe™**  
Portable Microscope Camera  
Gazer Series/G20

# Using Speed To Redefine The Domain For The Field Of Vision

Having to use a SLR camera with a macro conversion lens, adapter ring, and ring flash etc., the traditional way for micro photographing is not only complicated but also time consuming.

To simplify the process, the X-Loupe™ Portable Microscope Camera, composed of a digital camera and a microscope module. With the innovative concept of replaceable objective lenses (1), also the convenience and portability that a DSC possesses, X-Loupe™ will enable the change does come easy. Evolved from the A Series, now G20 features two different built-in light sources with internal and external rings (2).

Optimizing the excellent optical zoom function, more than 10 different lighting options; to capture the image within 0.5 second and grasp at the object as small as 12mm- 5microns; more simplified operational speed that still retains the preciseness. The X-Loupe™ G20 efficiently presents the authentic micro images the users' real needs, and to redefine the domain of vision.



1. Magnification lenses range from 60x, 150x to 300x
2. The internal ring :coaxial lighting ; external ring :low-angled lighting.
- 3 Recommended for using the patented 'Silicon Lens Contact Ring' to prevent the lens from rubbing on the fragile or delicate object, to stabilize the lens and then reduce vibration while photographing. Also help to adjust optimal focus angle and distance while pressing on the ring.



## Remaining mobility and convenience, the G Series has the further developments :

### Light, but not losing its stability

Even though the body size will not make a great impact on image quality, yet it directly influence the convenience while operating. The X-Loupe™ G20 is approximately maximum size of 150mm, maximum weight of 600g, which is not only an ideal weight, but it also conform to the operational way that a DSLR user is familiar with.

The enlarged handle increases the stability holding, and the layout has been enhanced to improve the operational functions. Therefore, the conformity in the design of ergonomics makes the G20 is light but stable, and then provides the precision and smooth process while photo shooting.

### Ultra-High Image Resolution

In order to correspond to the CCDs / CMOS of the DSC will be up to 10 megapixel, in addition to retaining the German SCHOTT® high quality and non-leaded optics lenses, the G20 uses next generation lenses with ultra-high resolution, to produce rich and razor sharp, faithfully present recorded pictures.

Due to the uncompromising optical design, the G20 successfully accomplishes high definition and high contrast to reconstruct the images; the excellent optical performance makes it possible to comparable with well-known Japanese macro lenses of DSLR.

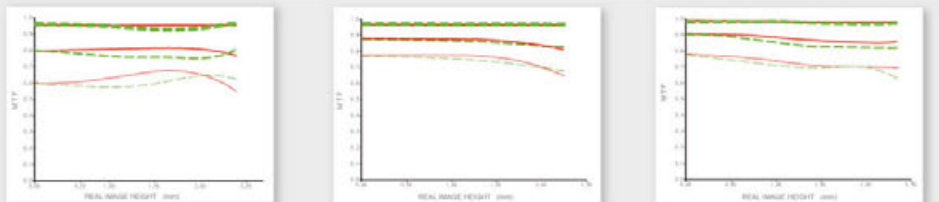
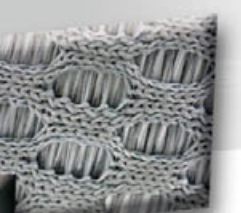


Illustration shows the next generation of microscopic lenses for the X-Loupe™ G Series; magnifications ranges from 60X, 150X to 300X, the three sets of curved lines indicate the device simulation value: 10 lp/mm, 30 lp/mm and 50 lp/mm



KEVLAR® (Antiballistic Fiber)  
X-Loupe™ G20 150X lens

### Digital Brightness Modulation – Succinct and Powerful

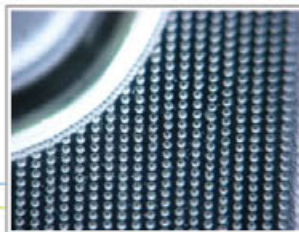
The X-Loupe™ G20 is equipped with 6 digital settings for luminance modulation, the operational settings for coaxial lighting and low-angled lighting can be viewed in the view finder. When restarting the camera, the previous recorded luminance will be displayed automatically. The luminance ranges from 0-100% in six settings maximizing the variable light requirements, and thereby helps the user minimize any complicated setting processes without getting distracted.



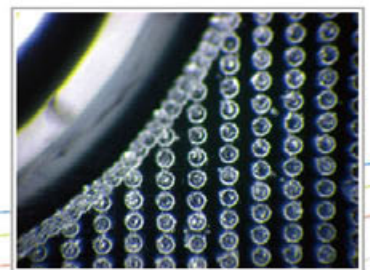
Macro Mode



X-Loupe™ G20+ 60X LENS



X-Loupe™ G20+ 150X LENS



X-Loupe™ G20+ 300X LENS



## Long Endurance Power - Safe and Stable

The new 820mAh Li-ion rechargeable battery still has a SANYO (Japan) Lithium battery core, which is compatible with Canon NB-5L battery. It provides G20 with an enduring power and will last the illumination over 5 hours while in the state of turning on both rings.

Because of X-Loupe™ series attach great importance to product safety; therefore the batteries for this series have double cutoff settings for high temperature and electrical current leakage to ensure the users' safety.

## Low-Angled 3D Quadrant Projecting Lighting

Lighting is one of the most important elements for successful microphotography.

The built-in continuous lighting of X-Loupe™ especially is the key to simplify the complicated process. In addition to the 'coaxial lighting' (Fully dimmable illumination), the G20 provides a 'low-angled 3D quadrant projecting lighting' (abbreviated: low-angled lighting), those will provide light from different directions, and anti-reflection to objects of high specular surface.



As illustration shows, with an appropriate angle, the low-angled lighting provides shadows and efficiently emphasizes 3D effect for the observed objects. Low-angle projection minimizes light reflection. This function equips the X-Loupe™ G20 to meet the challenges of photographing diamonds or specular objects.

## Examining the System Status - Clear at a Glance



The view finder shows the system status, immediately show all the required information, such as the remaining battery power, lighting status, luminance display, low-angled projecting lighting quadrant, etc. Clearly indicate the system status and how the light adjustment affects images.

The coaxial lighting (main) and low-angled lighting (sub) can be switched independently or operated simultaneously, depending on the conditions. The new coaxial lighting is provided by two sets (4 units for each set) of white LEDs. Each set can be operated individually. One of the LEDs sets can also be replaced by functional illumination LEDs<sup>(4)</sup>. The low-angled lighting adopts a quadrant as a light switching unit; each quadrant is equipped with two bright white LEDs. This brightness sometimes requires only one single quadrant illumination to supply sufficient light for photographing.

(4). Made-to-order required for specifications. Please consult the agent for further information.





## Camera Carrying Case

Conforming to American military specifications – MIL & ATA, and American Federal Standard, the X-Loupe™ G20 specified airtight instrument case is categorized as military standards. It is made of top-quality engineering plastic material. It is light and sturdy, and is dust-proof, waterproof, crash-proof and drop-proof. It perfectly meets professional applications and operational requirements.



### Accessories Included:

- Microscopic photodiode module
- 3 Microscopic lenses – 60x, 150x & 300x
- Lens module battery
- AVC-DC300 video-audio cable
- IXUS camera • Patent camera lens contact ring
- Portable case for storing the camera

**X-Loupe™ can and should be used in many phases of a micro product's (ex. EMES) design and manufacturing process, including materials selection, research and development of micro-components, assembly, quality control and maintenance.**

**It can be applied to the following professional fields :**



**The X-Loupe™ 'Portable Microscopic Camera' Series was awarded :**

- 2006 Taipei International Invention Show & Technomart Bronze Awards (Taiwan)
- 2006 Ideen-Erfindungen-Neuheiten Nuremberg Gold Awards
- 2007 National Invention & Creation Award Gold Awards (Taiwan)
- 2007 Taiwan Small and Medium Enterprises Innovation Award (Taiwan)

## X-Loupe G Series Specifications

Camera			
Compatible Camera Types	Canon IXUS 800 IS / 950 IS also call as Canon IXY Digital 800 IS / 810 IS (Japan) or Canon PowerShot SD800 IS / SD850 IS (U.S.)		
Camera General Specifications (IXUS 950 IS)	8M Pixels (1/2.5" CCD) / 2.5"LCD/2.5"/ Optical Image Stabilizer / 4.0X Optical Zoom SD - SDHC memory card		
Detail Camera Specifications	Please refer to Camera Operation Manual		
Exchangeable Objective Lenses	3 Lenses included		
Power	60X	150X	300X
Lens Material	Schott®no-lead Optical glass / Schott®		
Lens Design	X 3 glasses	X 5 glasses	X 6 glasses
Field of View	8 X 10.5mm	4 X 3mm	2 X 1.5mm
Resolution (by USAF 1951 Target)	90.5 lp/mm	181 lp/mm	228+ lp/mm
Illumination	60X	150X	300X
Fully Dimmable Co-axial Illumination	Yes	Yes	No
Low-angle Projection (Fully Dimmable with quadrantal- control)	Yes	Yes	Yes
Color Temperature	5000 - 6000K		
Light Source	White-light LED (Coaxial: 8pcs; Low-angle: 8pcs)		White-light LED (Low-angle: 8pcs)
Battery Module			
Display	Battery Status, Illumination Status, Quadrantal Light Status		
Controls	Please refer to operation guide		
Battery	820mAh Sanyo Li-ion battery core, Canon NB-5L compatible Canon NB-5L		
Current Consumption	Max. 130mA		
Battery Duration	5 Hrs.		
Battery Charging	Please use the camera's attached charger; 8 hrs first time, 3 hrs for general usage.		
Max. Dimension (mm)	150(L, with 300X lens) X 108(W) X 65(H)		
Weight of Microscopic Lens Module	Less than 450g (Battery included)		
Weight with DSC*	Less than 660g (Battery included)		
Operation Environment	0-40° C / 32-104° F		

\*DSC: Digital Still Camera (This specification is for the reference only. Further revision will not be notified.)

Taiwan: Patent Number 292708 ; Japan: Patent Number 3120470 ; United States, China and Germany: Patent Pending

## X-Loupe™ G20 Accessories

Specialized Stand	X-Loupe™ Li-ion Battery	Camera Carrying Case	Silicon Lens Contact Ring	Specialized Software
For hand-free operations (option) 	820mAh SANYO Li-ion Battery core 	Specially designed for X-Loupe™ G20 & its accessories 	1. Protect both lenses as well as subjects 2. Increase manipulation of focal plane 	Image files management (option) 

Distributor



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