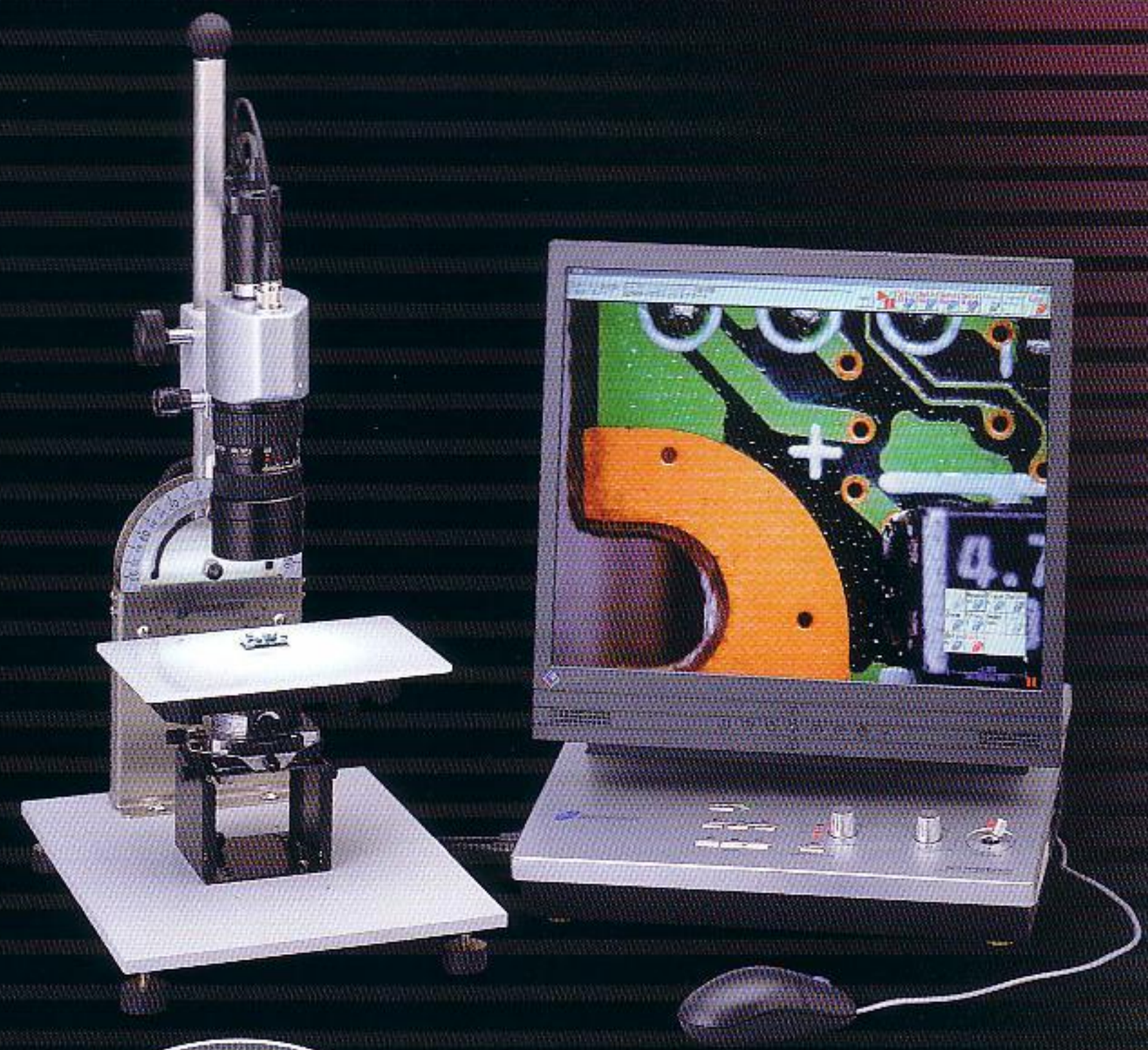
Digital CCD Microscope ● SCOPEMAN MS-804

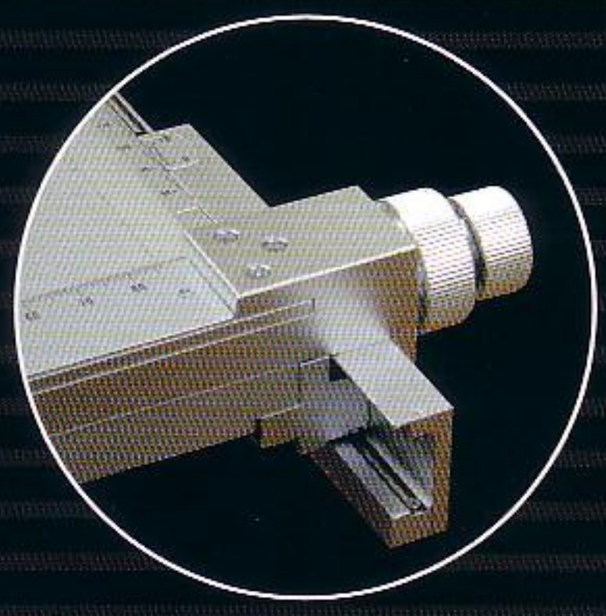
CCD MICROSCOPE

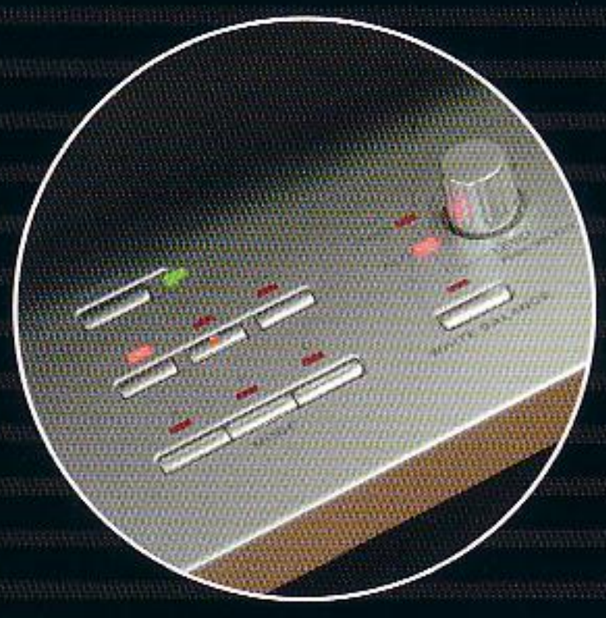
SCOPEMAN®

MS-804

New







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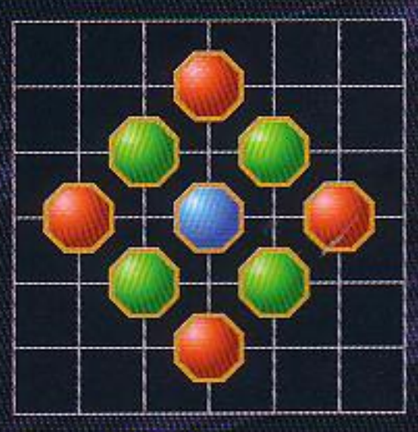
SXGA 15fps Output

...High resolution with high throughput.

With the introduction of MS-804 Moritex has raised the imaging quality and performance to new levels but not at the expense of time and efficiency. High speed processing gives SXGA image output at 15fps so no one will have to hang around waiting for information. Throughput can be maintained with no compromise on quality.



Super CCD honeycomb

CCD MICROSCOPE

SCOPEMAN®

MS-804

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* Super CCD Honeycomb is a registered trademark of Fuji Photo Film Co., Ltd.

High performance that leaps out of the monitor!

The MS-804 is a product of careful attention to basic performance functions.

An inherent benefit of paying careful attention to the essential components in the vision system is the efficient and cost effective delivery of a rich array of high performance functions. MS-804 offers features including Full Auto-scale for detecting the level of magnification in the zoom lens, Multi-Exposure High-Intensity LED lighting attached to the lens, Focus Monitor to ensure that different viewers observe objects at the same focus level,and Advanced Measurement Software. All are the product of our quest for sharper image quality and user-friendliness.

Optimum combination of CCD camera, lens and monitor

A good CCD camera is at the core of a system if high resolution is to be guaranteed but the actual perceived image also depends on the performance of the camera lens and presenting it on the appropriate quality of display monitor. Careful matching of these key components in MS-804 results in performance that users can see right away.

Best in the industry* Zoom lenses and cutting-edge lighting technology

MORITEX was the first in the industry to incorporate zoom lenses into its video microscopes and is continuing to make significant innovations. It has successfully achieved a resolution of 1200 lines/inch, the highest in the industry*, without lowering the magnification to less than 8x.

In the field of lighting Moritex is maintaining its best-in-the-industry track record by introducing the industryÅfs first Joystick-Operated Lighting Optimization for High-Intensity LED that carefully compliments the CCD cameras and lenses. Correct illumination is crucial and with this fingertip control light can be adjusted to reveal the details required without quickly and easily.

Measurement software focusing on user experience

Measuring efficiency is determined by the performance and user friendliness of the measurement software. The MS-804 provides a wide range of measurement features that are made all the more usable with features such as Color Extraction Measurement and Monochrome Effect, allowing the user to designate more easily the area for measurement when studying complex images and get the results quicker.

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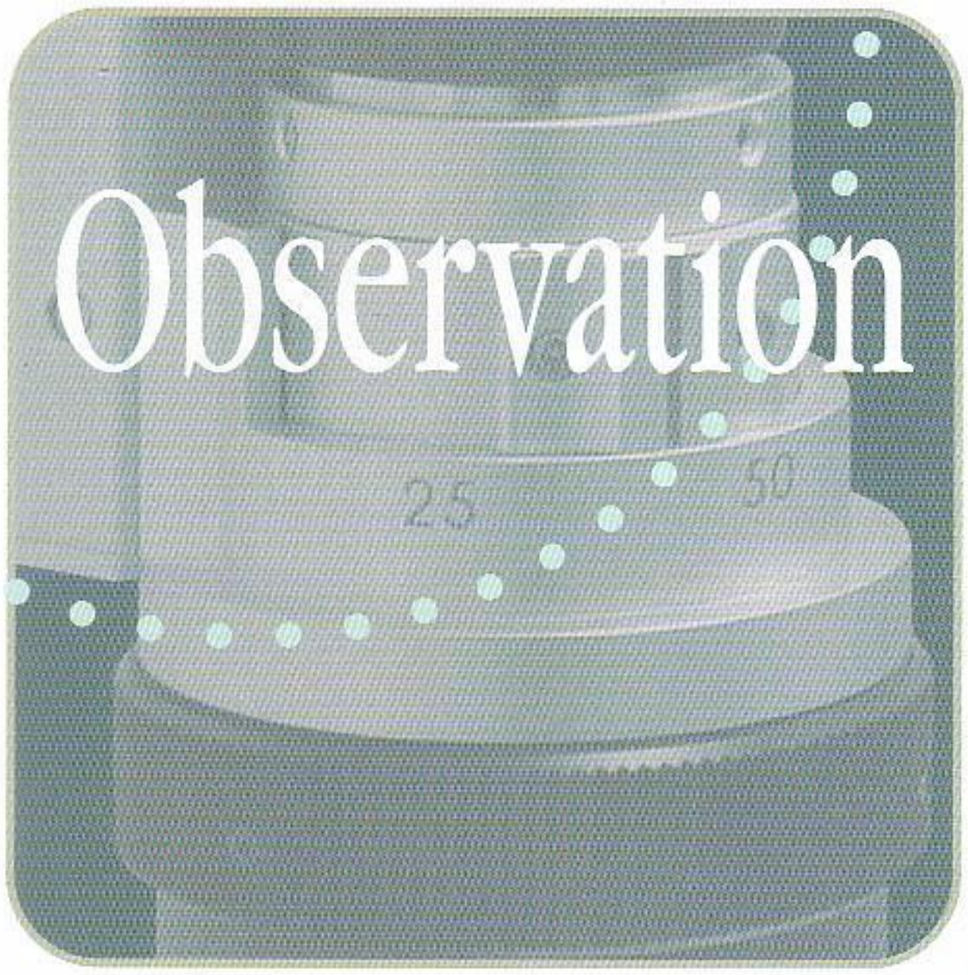
* As of June 2004



Pursuit for higher-resolution, sharper image quality

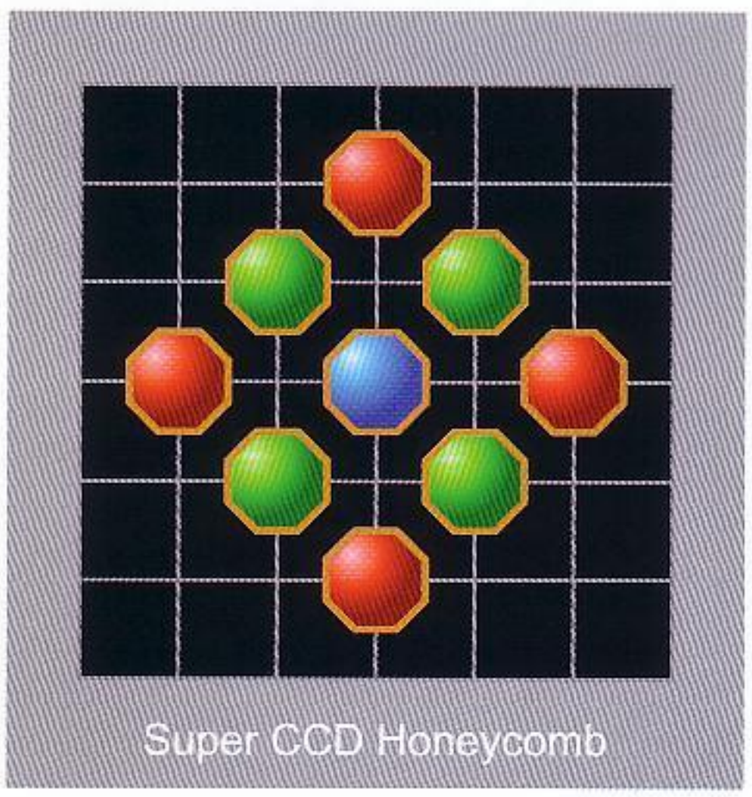
You cannot have "sharper images" only by increasing resolution and pixels.

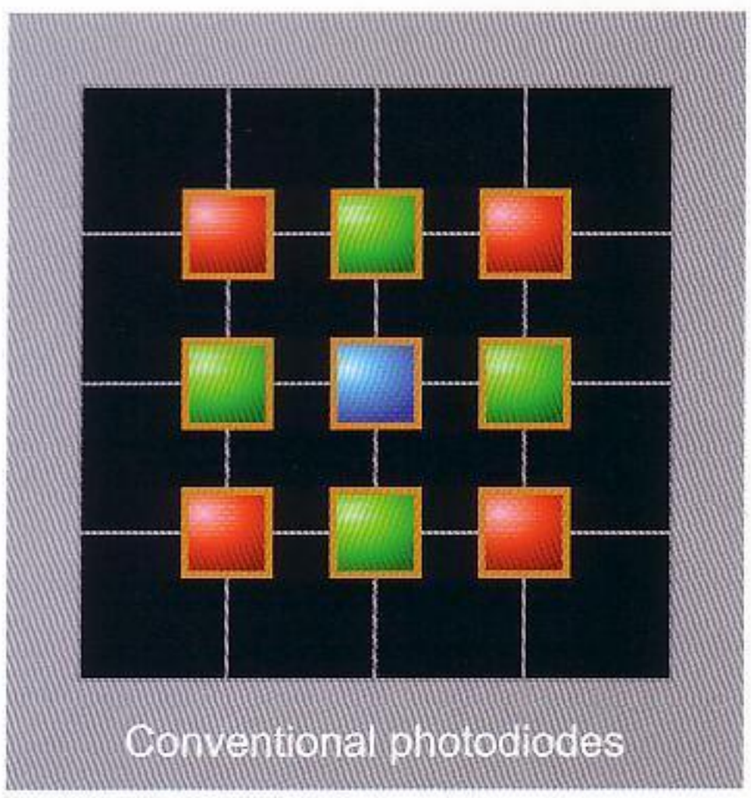
Increase in pixels has brought about enhanced resolution, while CCD size have continued to reduce in size. But it has currently become a critical challenge to increase the number of pixels while maintaining sensitivity, dynamic range and S/N. In order to overcome this challenge, MS-804 features the "super CCD honeycomb" technology to allow the camera to provide higher-quality images.

Super CCD honeycomb promises enhanced image quality

The "super CCD honeycomb" is an innovative CCD image sensor developed on the completely new concept initiating from the basic structure forming. By transforming the shape of a pixel from quadrangle to octagon and arranging them on a honeycomb-like form at a 45-degree angle to the frames, users can experience the unparalleled high sensitivity, wider and more dynamic view range, high S/N and high solution that no previous technologies provided. The "super CCD honeycomb" delivers excellent features that break through the limit of existing CCD.

1. The honeycomb pixel arrangement greatly enhance area efficiency of the light sensing portions, so that users can experience higher sensitivity, lower noise and wider and more dynamic view range than the conventional CCD types.
2. The honeycomb pixel arrangement is fit to the spatial frequency distribution of image data in the nature world as well as visual characteristics of humans.
3. The combination of the honeycomb pixel arrangement and the over-sampling signal processing technology allows users to implement digital zooming even in a shooting process without deteriorating image quality.
4. The honeycomb pixel arrangement provides the pixel-skipping reading capability without deteriorating image quality, so that users can monitor the high-quality video image.





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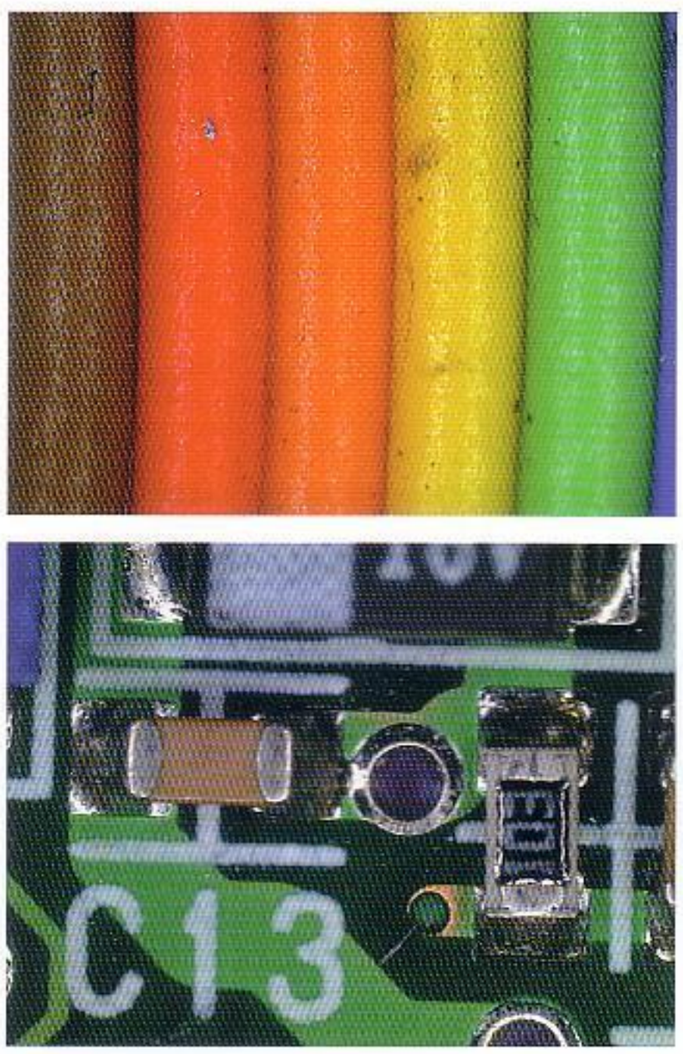
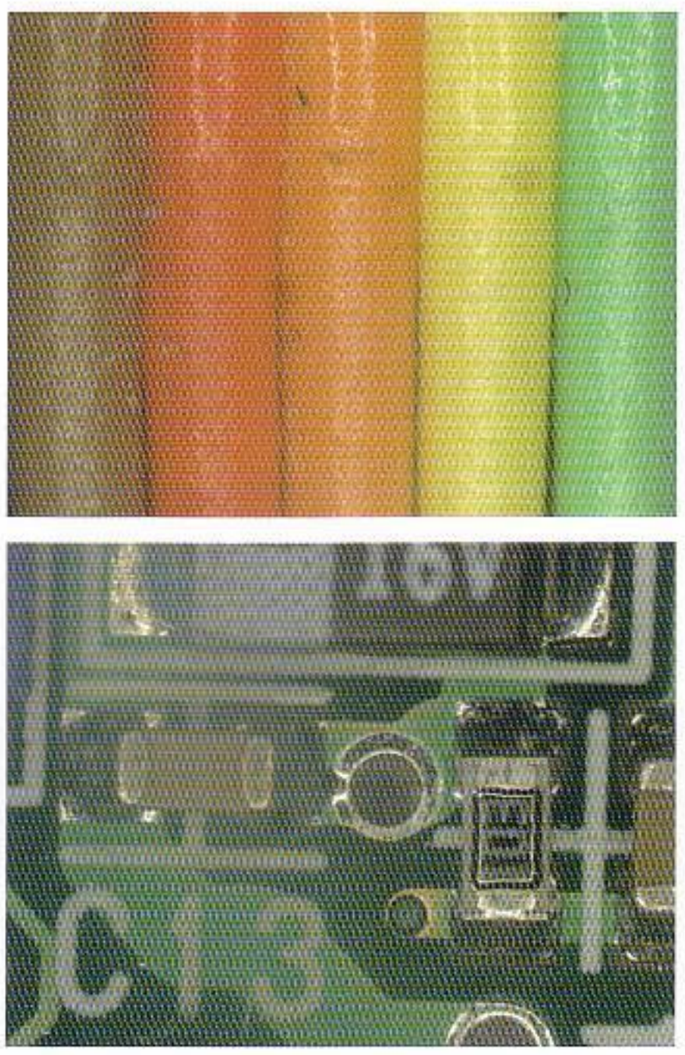
■ Comparison of MS-804 (featuring the super CCD honeycomb) with a conventional 300-pixel CCD scope

MS-804 (featuring the super CCD honeycomb)



Conventional 300-pixel CCD scope



* Comparison with the conventional company products

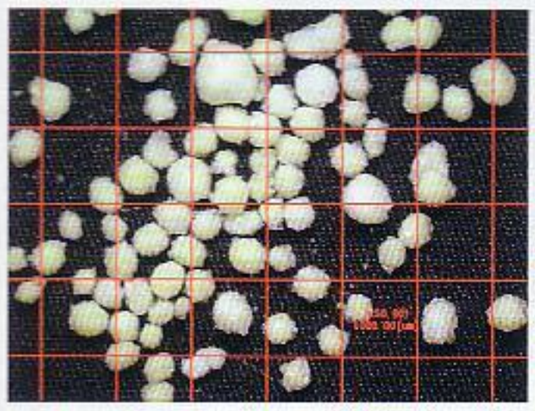
New features provide sharper image quality.

First in the industry

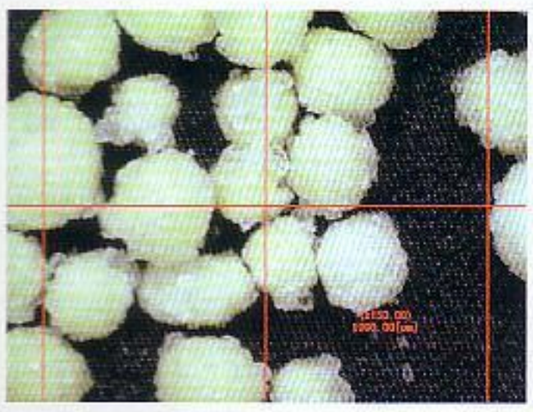
Full Autoscale Feature

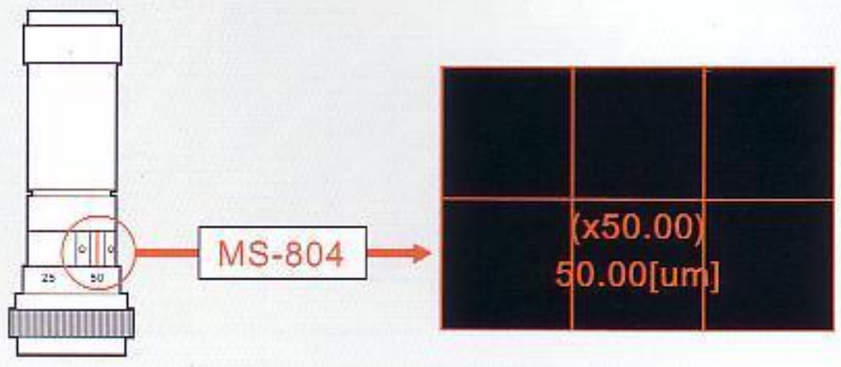
Patent Pending

This is a system for automatically detecting the level of magnification from the zoom lens and displaying this on the screen.
Since you can change the magnification displayed on the screen without performing calibration or reading out the stored data, it is less cumbersome to operate and prevents input mistakes.



Zooming with the lens (changing magnification)





First in the industry

Multi-exposure High Intensity LED Lighting

The lens is equipped with a high intensity LED.
You can change the direction in which light is shone, and a mark etc. that was not visible with light coming from one direction can be observed in a clear picture.

* The LED lighting can be removed.

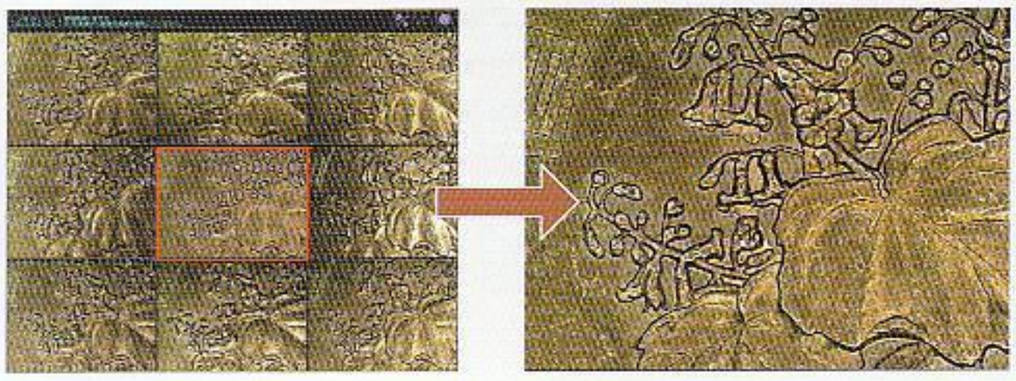
Joystick Lighting Operation

Subtle adjustments in the lighting direction can be made easily using a joystick. Since such operations can be made simply and quickly, users are freed from the stress of not being able to decide on the lighting direction.

Patent Pending

Lighting Optimization Feature

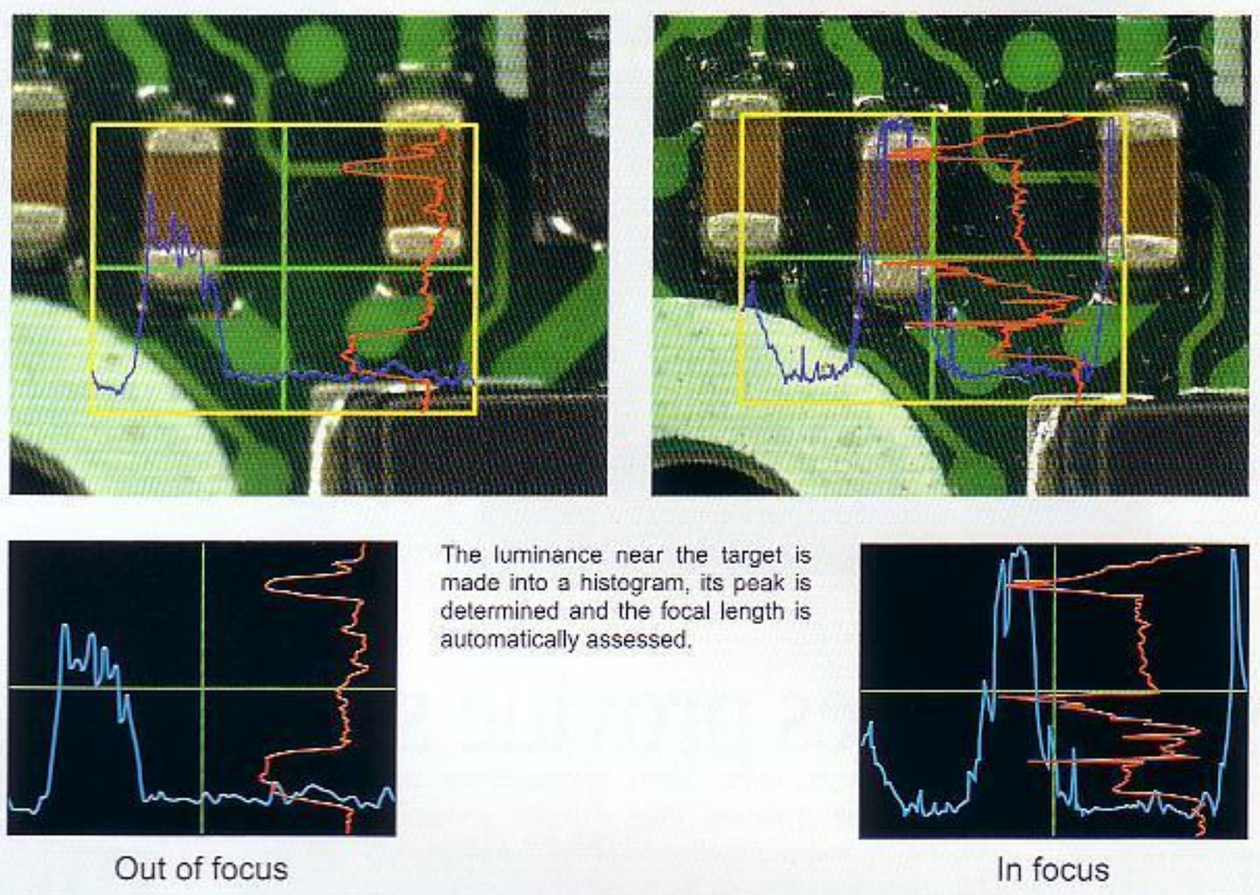
9 screens with the lighting direction automatically changed are simultaneously displayed. The user chooses the best picture from among these to set the LED lighting. Since you can view the 9 pictures displayed on the screen at once and compare them in order to decide on the best lighting direction, even people who are not used to working with this technology are able to easily obtain the optimal picture for observation.



Rich functions to free users from stress in all the observation efforts.

Focus Monitor Feature

The question of where the camera should be focused differs according to the person doing the observation, and this "Focus Monitor Feature" eliminates the errors caused by differing points of focus. Looking at the luminance distribution of the CCD in the vertical and horizontal direction, the camera is focused (manually) according to the rise and decay. Therefore, it can be easily focused even if different people are conducting the observations, so enabling the same measurement data to be obtained.



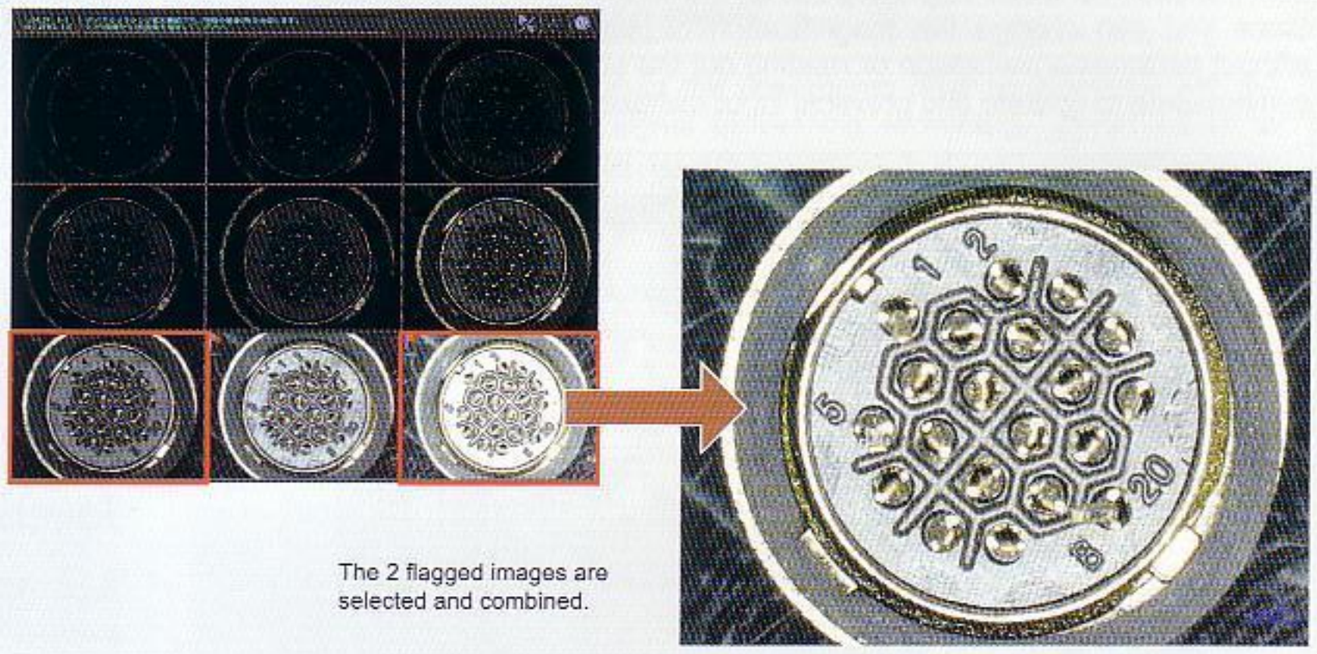
Out of focus

The luminance near the target is made into a histogram, its peak is determined and the focal length is automatically assessed.

In focus

Greatly Enlarged Dynamic Range

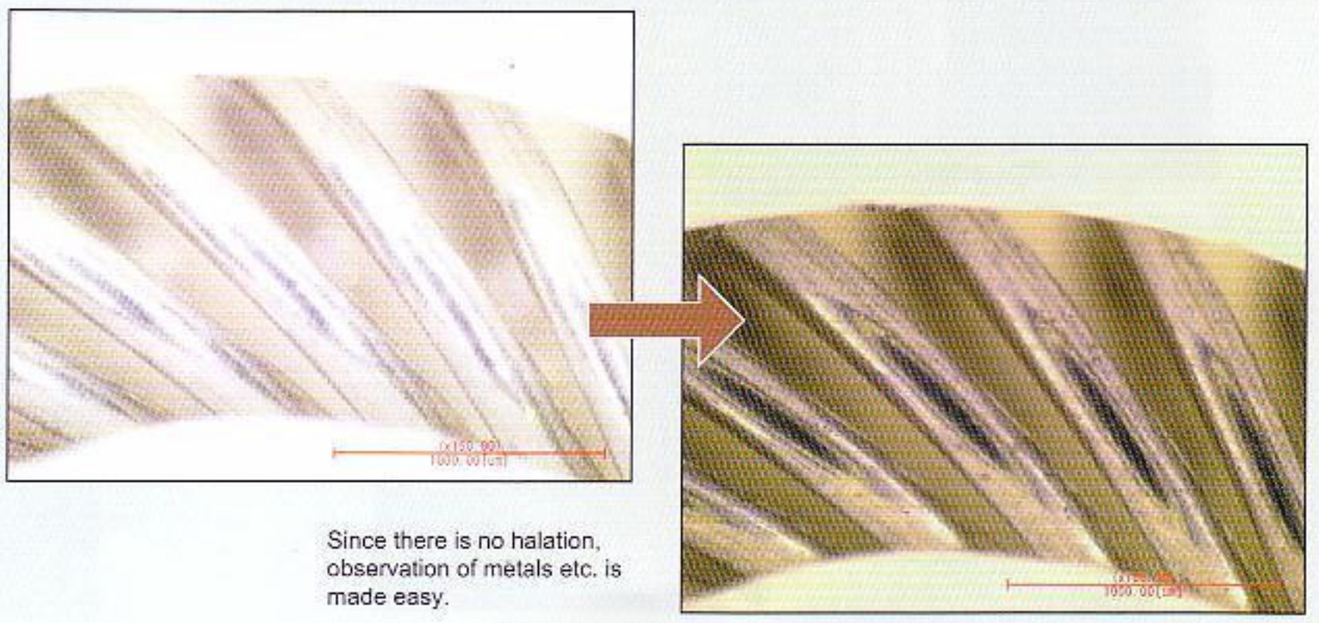
By changing the camera's shutter speed and combining 2 images, that is a "bright image" and a "dark image", the dynamic range can be increased dramatically. Parts of a subject that until now have been too dark to see or too bright to see can be clearly captured in a single image.



The 2 flagged images are selected and combined.

Long Exposure Feature and Elimination

For example, when observing a solder mounting surface on a substrate, a phenomenon (halation) sometimes occurs where the light hits the surface of the solder and shines too brightly, making it appear white. With the long exposure feature (0.455~10 seconds), by photographing with lowered illumination intensity or without any light, this effect can be prevented.



Since there is no halation, observation of metals etc. is made easy.

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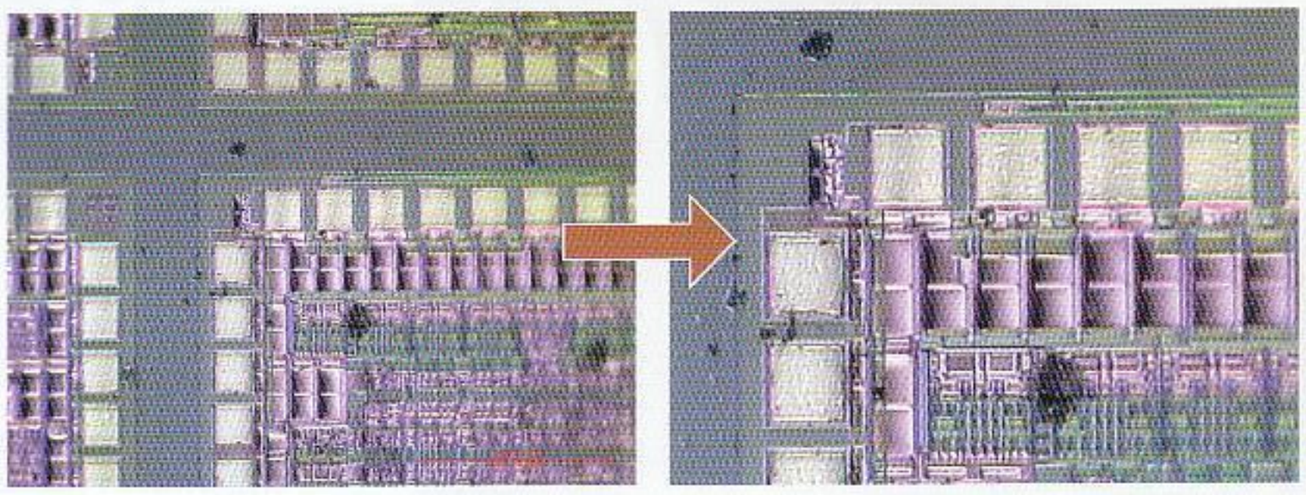
Digital Zoom Feature

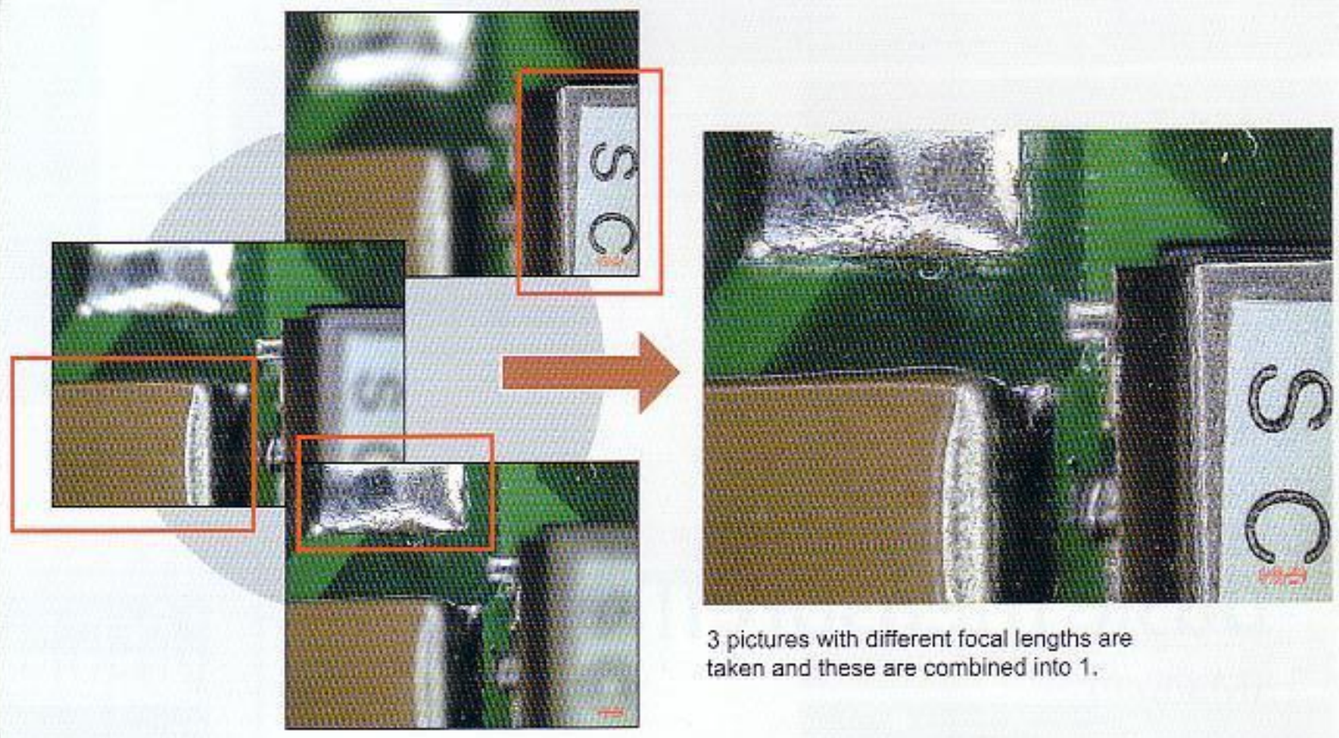
The product is equipped with a digital zoom feature that is able to instantaneously expand the magnification 2 times with one click of a button. This is easy to use and improves work efficiency.



You can select up to 7 frequently used observation features and create shortcut icons on the screen.

Pan Focus (Depth Composition) Feature

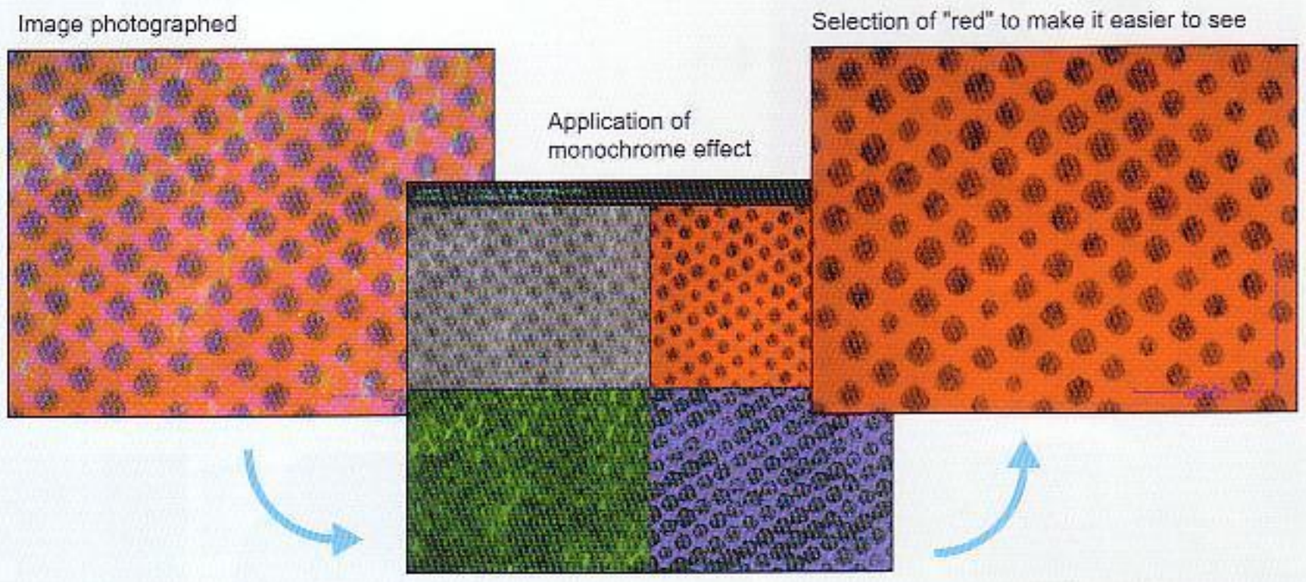
When the unevenness of the subject is great and it is not possible to focus on the whole subject at once, by combining together images that are in focus, an overall picture that is completely in focus can be easily created.



3 pictures with different focal lengths are taken and these are combined into 1.

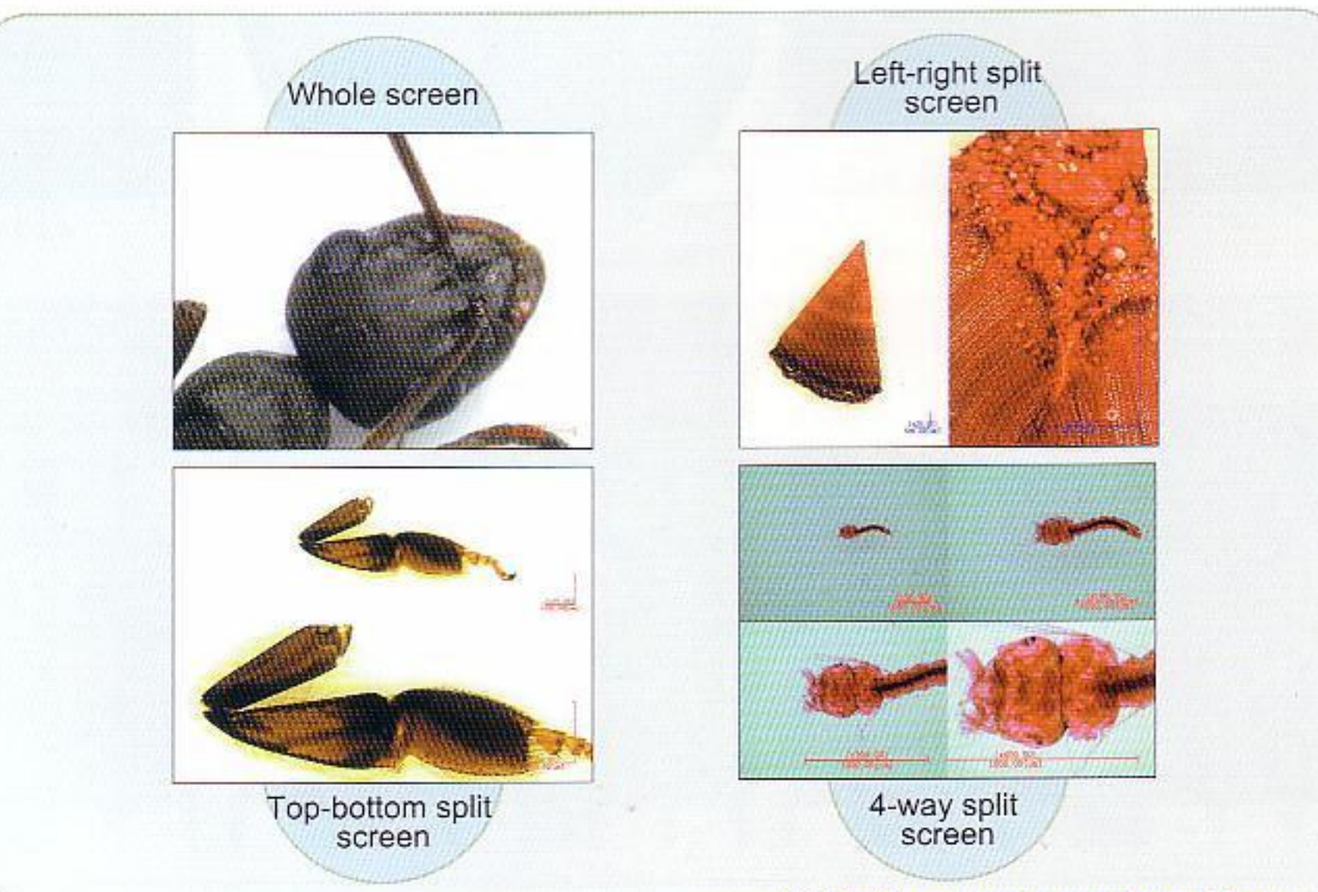
Monochrome Effect Feature

The pictures can be displayed as still images in monochrome settings of red, blue, green and black. This feature is used when a part that the user wants to view would become easy to observe using a monochrome display.



Split Screen Display

Images can be displayed with the screen split left-right, top-bottom or divided into 4.



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Measurement

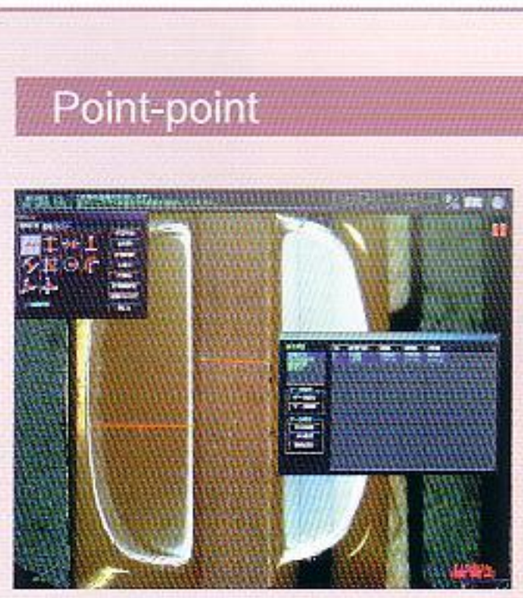
Measurement Features

Measurement features have becoming

Basic measurement

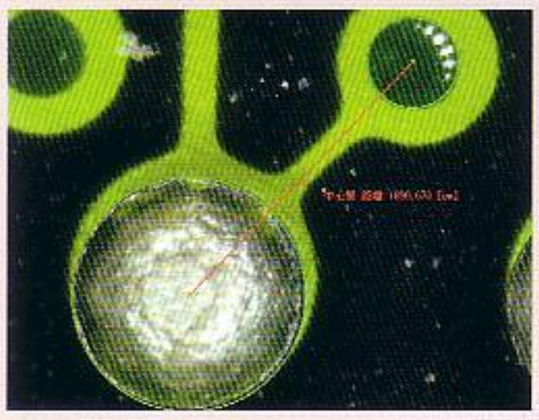
(Manual)

Point-point

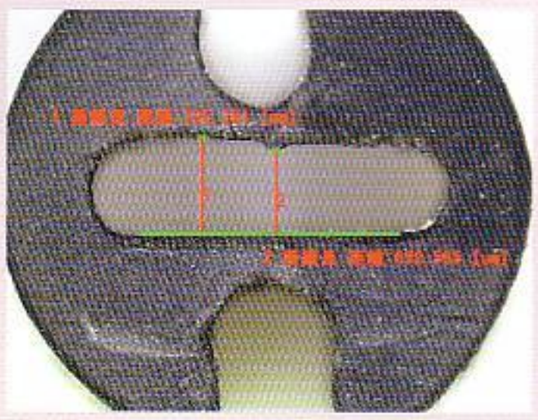


Between mid-points

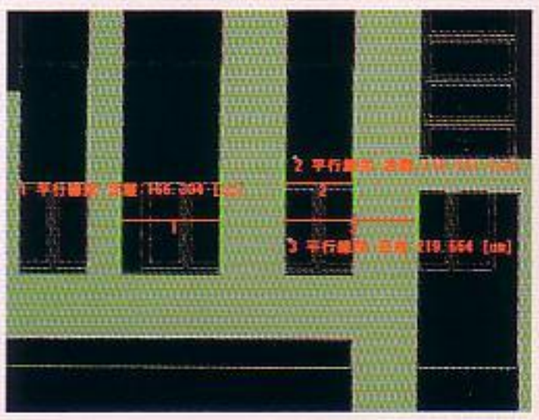
Between centers



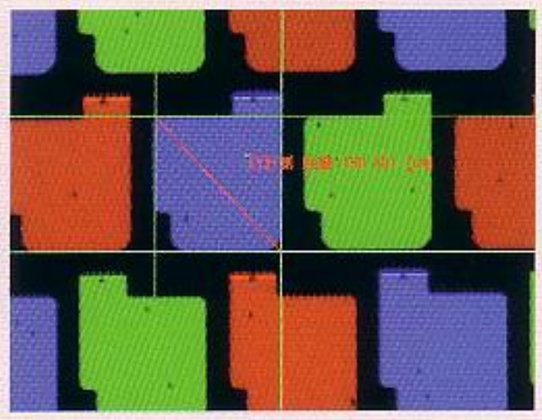
Perpendicular line



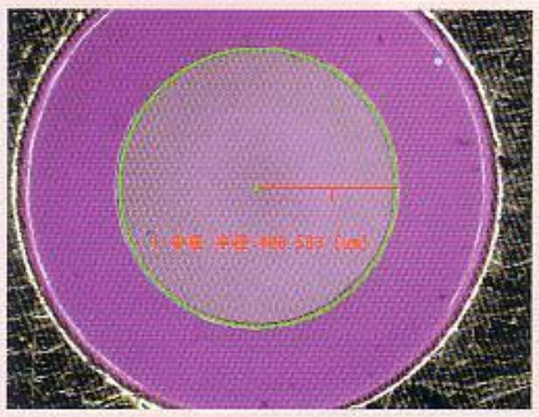
Parallel line



X-Y measurement



Radius



Angle 1

Angle of intersection

Arc length

* The data display can be switched between millimeters and microns.

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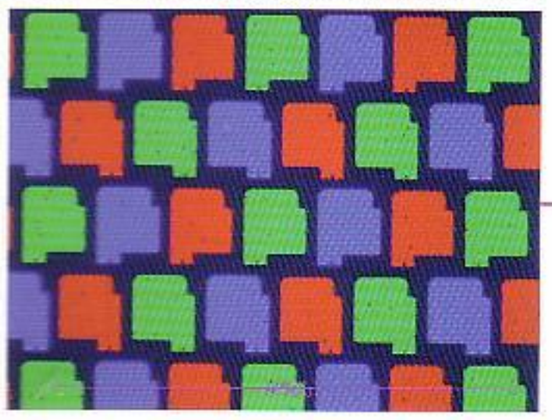
SCOPEMAN® MS-804

further improved, more convenient and ease to use

Area Measurement / Count

(Auto / Manual) (Auto / Manual)

Auto area

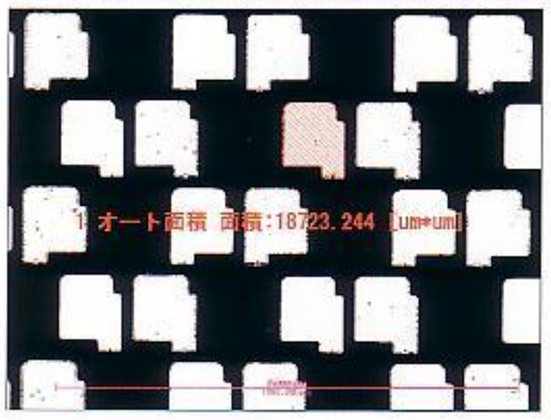


Binarization

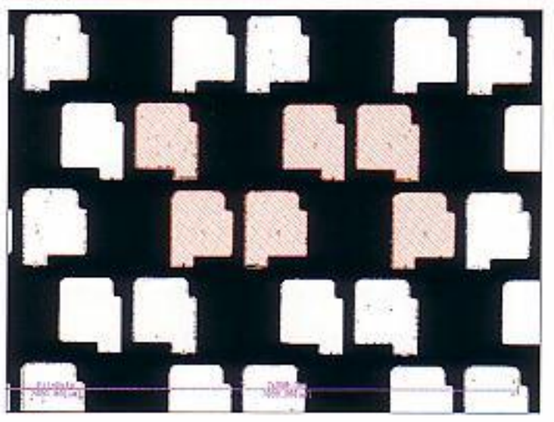
or

Color Sampling

Point specification



Range specification



Data can be outputted in CSV form.

No.	Measurement contents	Area	Circumference
1	Auto area	18567.706	600.224 [um]
2	Auto area	18893.441	611.144 [um]
3	Auto area	18689.856	593.624 [um]
4	Auto area	10096.969	527.812 [um]
5	Auto area	19162.986	659.292 [um]
6	Auto area	17277.795	586.827 [um]

Trace (Circumference Measurement)

(Auto)

The edge of the subject is extracted and its length is measured. This is convenient for measuring the circumference length of a subject that has a complicated shape, for example when parts are corroded.
The user is freed from making time-consuming measurements by clicking numerous times, as was formerly the case.

Trace

Binarization

or

Color Sampling

Point specification

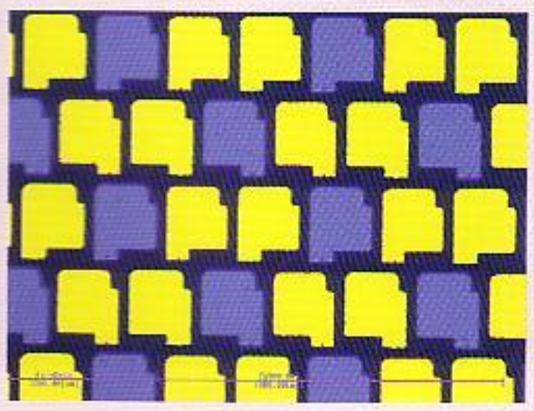
Range specification

Color Sampling Measurement

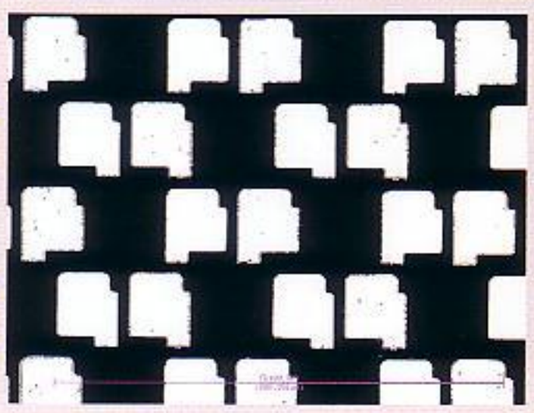
The parts of the subject that have the same color can be automatically selected and their area and count can be calculated. This may be applied to a variety of subjects such as medicines and printed material.

Original image

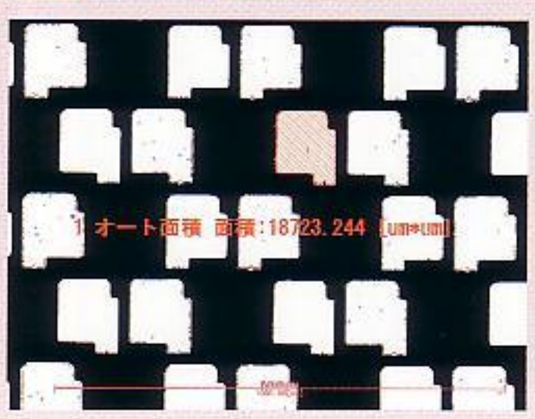
Red and green parts are selected and extracted as yellow parts.



Binarization



Measurement by range specification or point specification



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High-Performance Lens

Excellency in representation
The high-performance lenses

Compatible with super-resolution 2/3 inch CCD: Mega-pixel 8X zoom lens

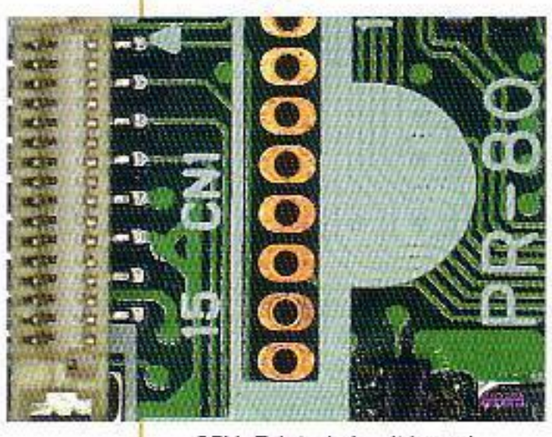
If the camera or monitor guarantees higher resolution, the actual picture image is not enhanced drastically without improving performance of the lens.
The mega-pixel zoom lens, innovation designed for MS-804, ensures higher resolution than SXGA even with magnification of 8X. The high-performance lens maximizes the true potential of high-resolution cameras or monitors to produce sharper images.

25X~200X

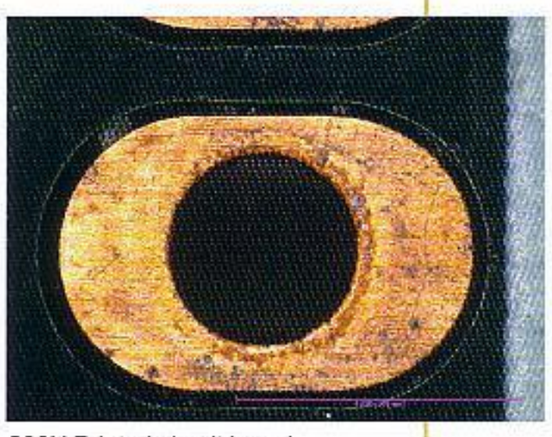
8X Zoom

MP-ZE25-200

Full Autoscale Support



25X Printed circuit board
(mega pixel 8X zoom lens)



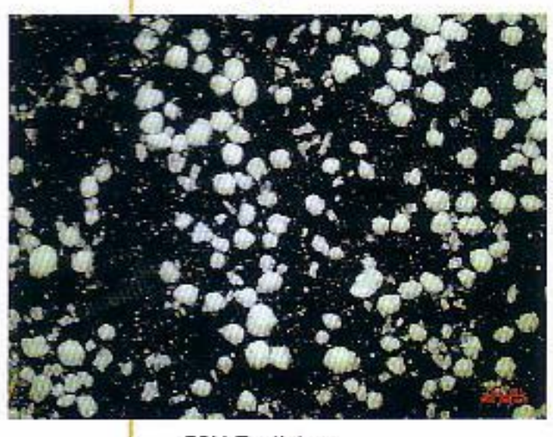
200X Printed circuit board
(mega pixel 8X zoom lens)

50X~400X

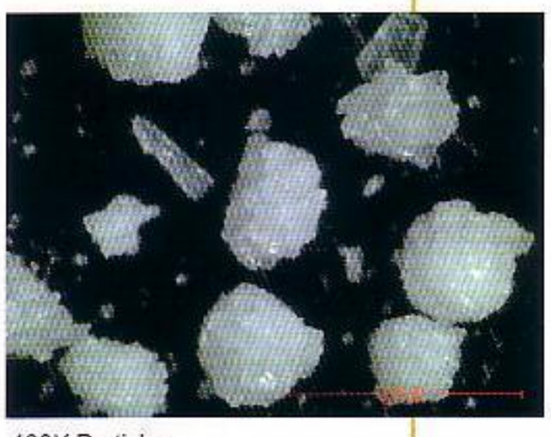
8X Zoom

MP-ZE50-400

Full Autoscale Support



50X Particles
(mega pixel 8X zoom lens)

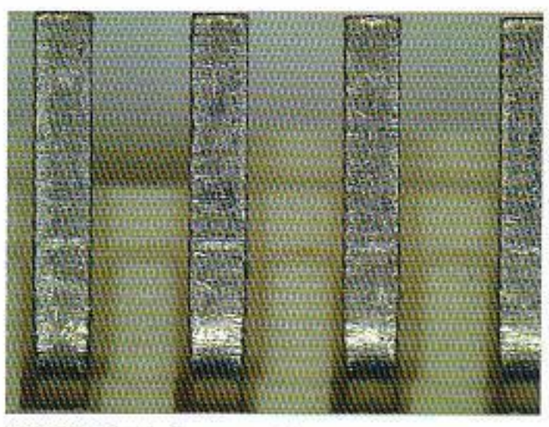


400X Particles
(mega pixel 8X zoom lens)

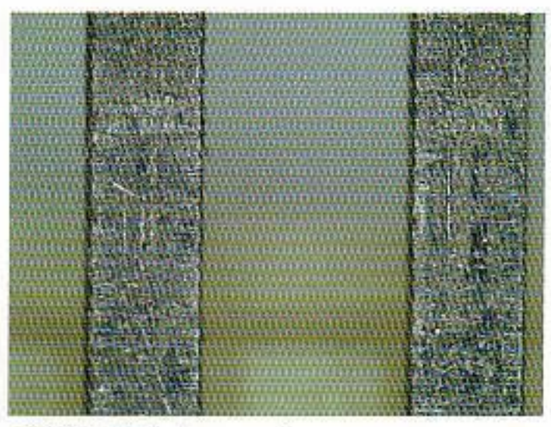
SCOPEMAN® MS-804

capability
maximize the true potential
of the function-rich CCD camera.

Mega-pixel single-focus lens



100X Straight pin connector



200X Straight pin connector

* The lenses with magnifications of 100X, 200X, 50X to 400X and 100X to 800X can be used in the common LED illumination.

Standard Type

16X~100X

SD-Z16-100

25X~100X

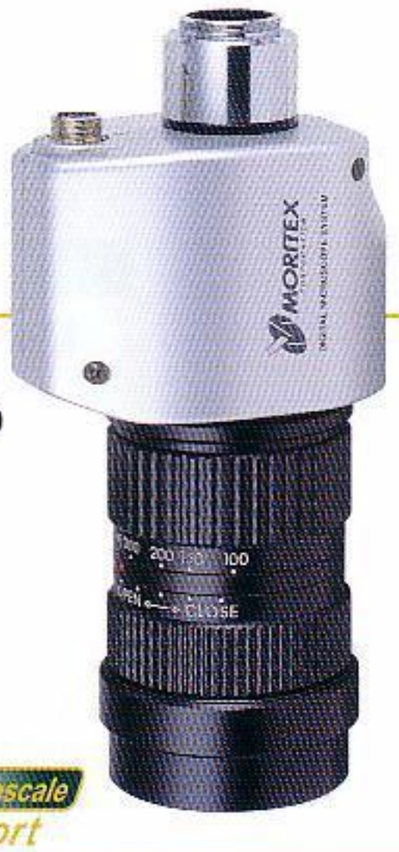
SD-ZE25-100

200X~600X

SD-ZE200-600

100X~800X

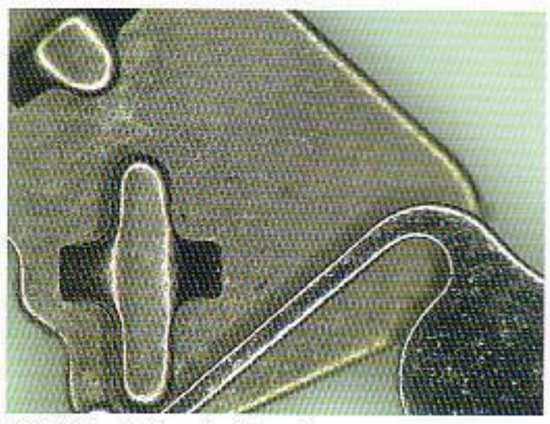
SD-ZE100-800



Full Autoscale Support

Full Autoscale Support

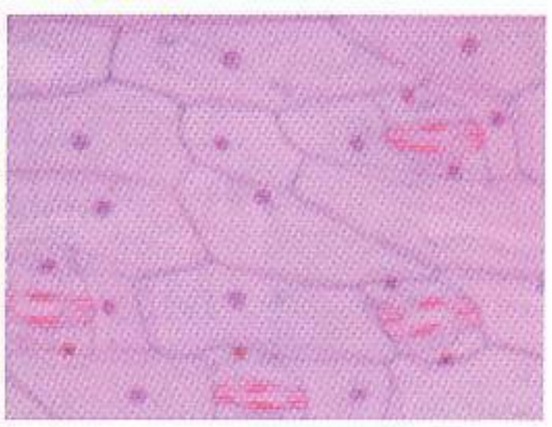
Full Autoscale Support



100X Clock (standard type)

200X Plastic mold (standard type)

600X Fiber end (standard type)



800X Spiderwort

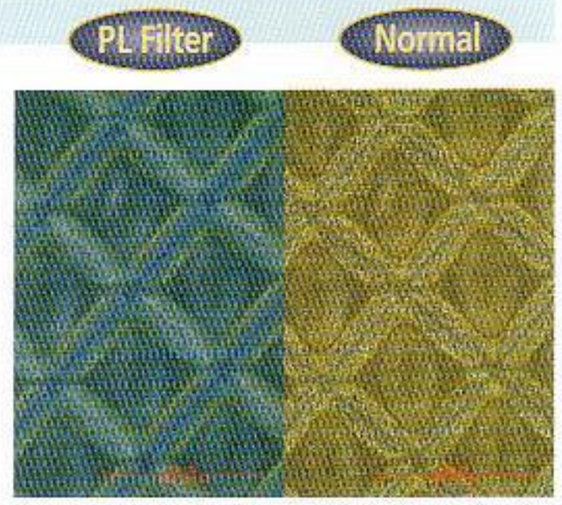
YSC Technologies
Tel: 510.226.0889
info@ysctech.com

Lens Options

Extensive lens options

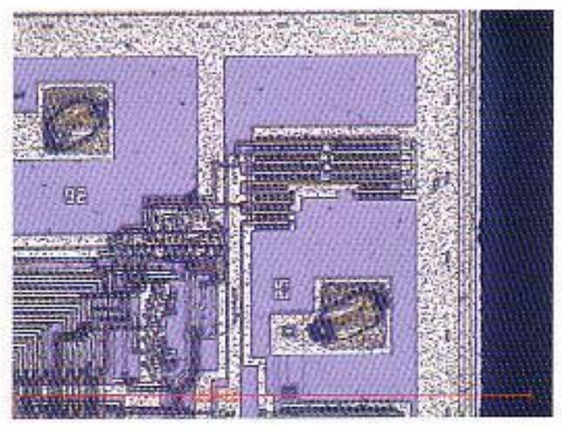
Mega-pixel lens compatible:
PL Filter
MEGA-PL

Compatible lens:
25X to 200X
50X to 400X
100X to 800X



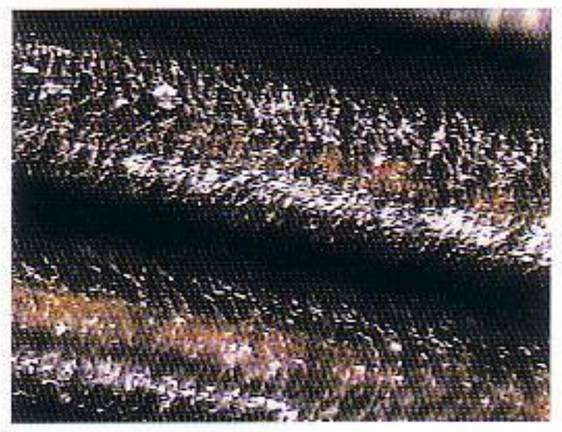
Mega-pixel lens compatible:
Coaxial Episcopic Illumination
MEGA-D

Compatible lens:
50X to 400X
100X to 800X
* Tobe used by replacing the attached standard LED lighting.



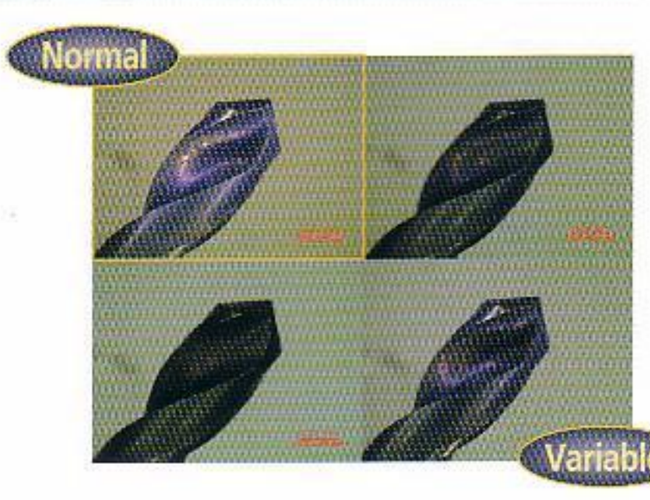
Mega-pixel lens compatible:
Contact Adapter
MS-ZECAD

Compatible lens:
50X to 400X
100X to 800X



Mega-pixel lens compatible:
LED Lighting Angle Variable Adapter
MS-CHAAD

Compatible lens:
50X to 400X
100X to 800X
* Tobe used by replacing the attached standard LED lighting.



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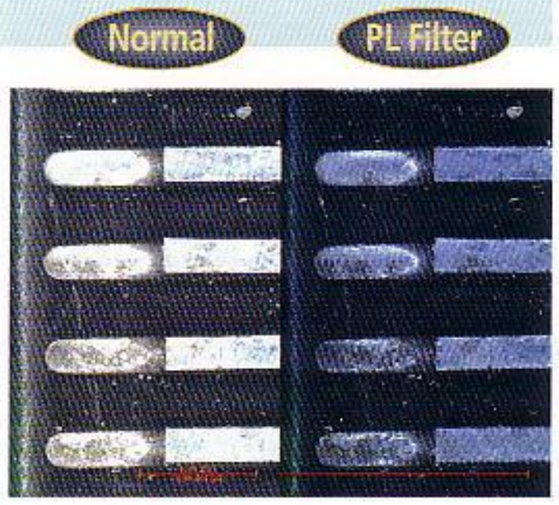
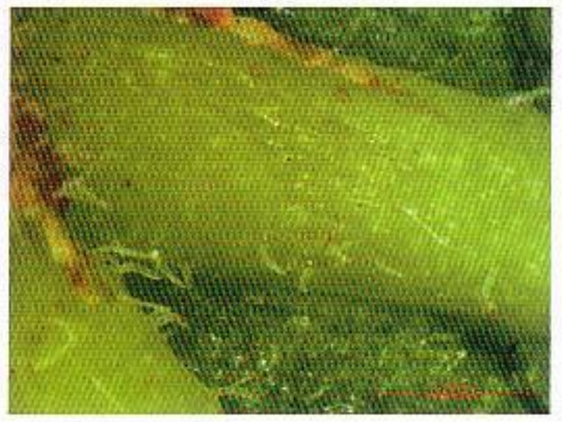
Standard lens compatible:
PL Filter
STAN-PL

Compatible lens:
25X to 100X



Standard lens compatible:
Contact Adapter
STAN-ZECAD

Compatible lens:
25X to 100X



SOD compatible:
Coaxial Episcopic Illumination
SLED-1

SOD 10X

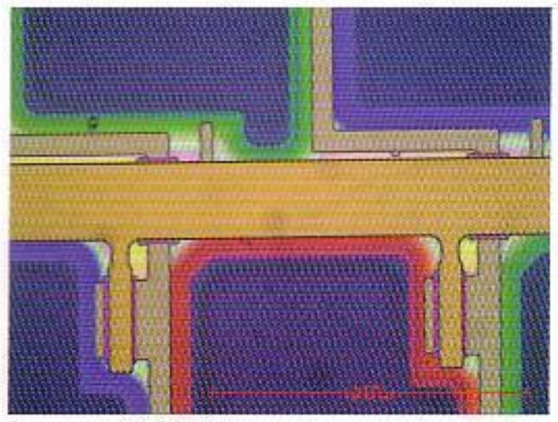


Image at 1000X

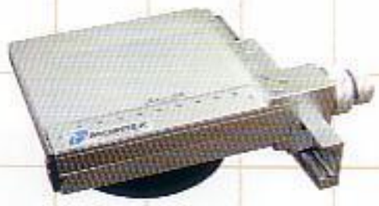
SOD compatible: Tele-Converter

SOD-2X (2000X)*
SOD-1.5X (1500X)*

* Magnification attained by combination with SOD-10X.

Optional attachments

XY-A stage



MST-XY stage
complete with
transmitted illumination

Z stage

Foot switch

Color printer

Camera stand
& XY-A stage

Precision camera stand

Swing-Head
Camera stand
& MST-XY stage

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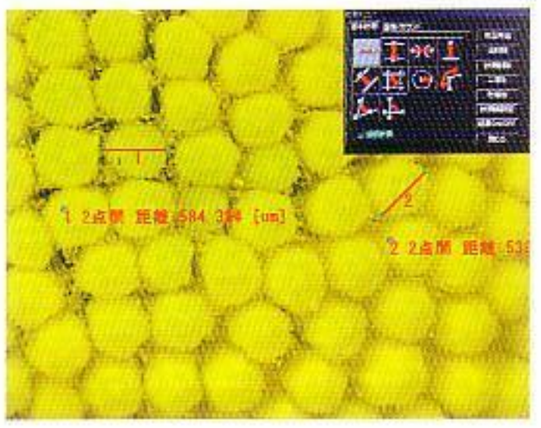
Rich Functions

User-friendly design that pays

Drawing function, and capabilities to insert and save comments

Users can draw boxes, polygons, polygonal lines and circles on the screen, and can insert the comment onto the drawn image for preparation and saving of reports or documents.

The drawn figures can also be moved and expanded on the screen simply with a mouse. In addition, users can save and display the figures created by using the drawing function.



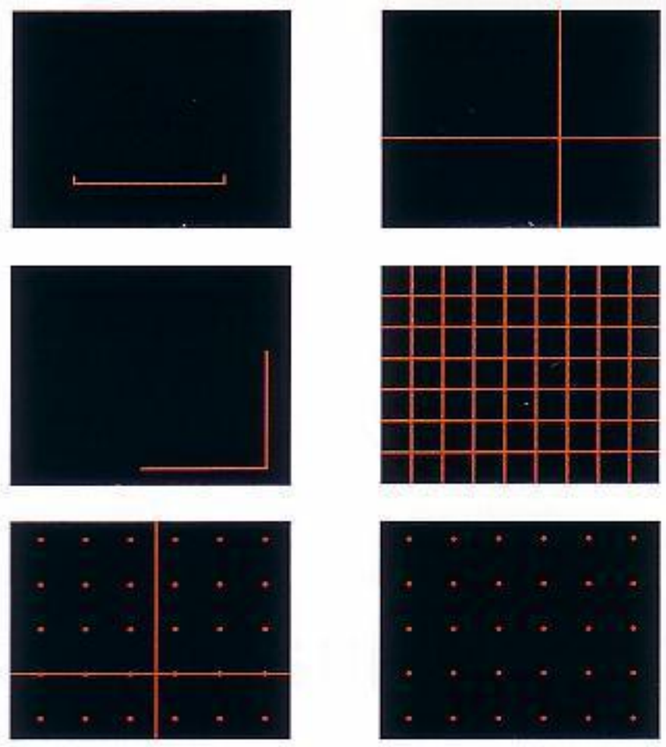
* Thumbnail images can be saved. (Up to 230MB or about 200 cards)

Scale display

The scale measures on the screen help users grasp how large the actual scale is.

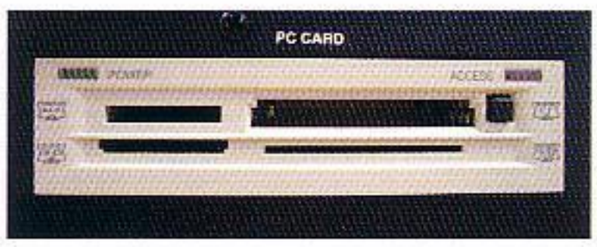
The screen shows 6 types of measures consisting of Bar, XY Bar, Cross Line, Grid, Dot, and Dot & Cross. Moreover, the zoom lens automatically shows the magnification data, so that uses can read the scale without having to make complicate lens adjustment.

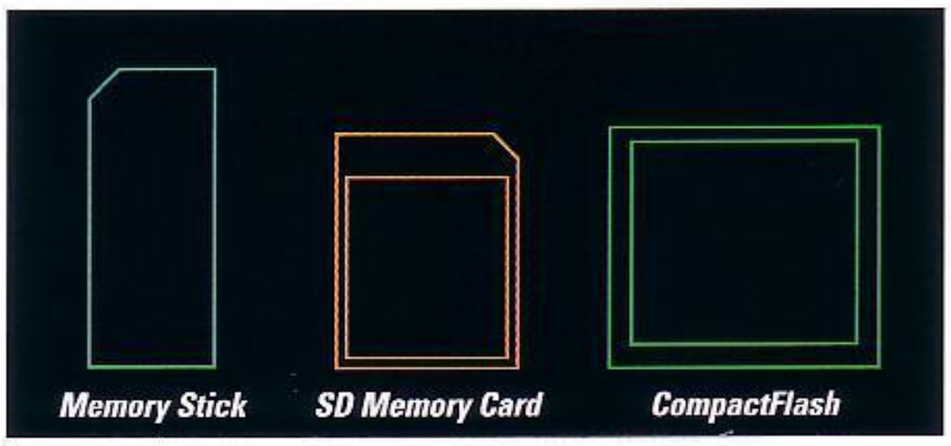
In order to have clear sight, users can also change the location of the measure by dragging it with a mouse on the screen. (Only three types of measures such as Bar, XY Bar and Cross Line can be moved to another location.)



Compliant with various recording media

The data can be stored directly on the flash memories such as memory sticks, compact flashes or SD memory cards. The design approach caring for details offers user-friendly functions.





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SCOPEMAN® MS-804

Compact*
attention to detail. Massive efficiency improvements.

* Only occupies a very small space of W 370mm x D 320mm

MS-804 Main body

Foot switch

Mega pixel 8X zoom lens

25X~ 200X

50X~ 400X

Mega pixel single focus lens

100X 200X

Standard type

16X~ 100X

25X~ 100X

200X~ 600X

100X~ 800X

SOD-10X

C-mount adapter

Light scope MSPS-1000~3000Ⅲ

Borescope BS2.4-102~BS6.35-435

Ultra-high-Magnification zoom lens DZ3

Light scope light guide

Tele-Converter X 2 X 1.5

Light source

Coaxial Episcopic Illumination SLED-1

Swing-Head Camera stand & MST-XY stage

PL Filter MEGA-PL

Coaxial Episcopic Illumination MEGA-D

Contact Adapter MS-ZECAD

LED Lighting Angle Variable Adapter MS-CHAAD

PL Filter STAN-PL

Contact Adapter STAN-ZECAD

Fine-tune adapter complete with simple height measurement

(Model : SKZ-25)

* Complete with simple height measurement using depth of field

804 Adapter

Camera stand & XY-A stage

Precision camera stand

XY-A stage

Z stage

MST-XY stage complete with transmitted illumination

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CCD MICROSCOPE

SCOPEMAN® MS-804

Lens

Mega Pixel 8X ZOOM	MP-ZE25-200	25X~200X
	MP-ZE50-400	50X~400X
Standard Type	SD-Z16-100	16X~100X
	SD-ZE25-100	25X~100X
	SD-ZE200-600	200X~600X
	SD-ZE100-800	100X~800X
Mega Pixel Single Focus Lens		100X
		200X

Measurement features	Point-point measurement, radius, measurement of distance between centers of circles, curve length, Angle 1, Angle 2, length of perpendicular line, parallel line, count, XY measurement, area measurement (quadrangle and circle area measurement, automatic area measurement, digital measurement) Color sampling, measurement setting, comment insertion
Diagram drawing features	Quadrangle, polygon, broken line, circle
Split display	(Overall display, left-right split, top-bottom split, 4-way split)
Graphic effects	● Special effects (long exposure, dynamic range expansion, depth composition) ● Corrections (gain, gamma, edge enhancement) ● Lighting assistance feature

MS 804 Specifications

Camera	Image pickup device	1/4.2 inch CCD image sensor
	Number of pixels displayed	1280 X 960
	Scan mode	Progressive
	Resolution	At least 600TV lines
	Frame rate	15F/S
	Electronic shutter	AUTO, MANU Manual mode can be varied in 45 stages from 1/3~1/10000
	Long exposure	Can be varied in 9 stages from 0.5~10 seconds
	White balance	ONE PUSH SET, MANU
Monitor	Size	17 inch TFT color LCD
	Number of pixels	1280 X 1024 SXGA
	Colors displayed	16,770,000 colors
	Brightness	250cd/m2
	Contrast	500:1
	Viewable angles	Horizontal, 170 degrees perpendicular
Image storage	Form of storage	JPEG
	Internal storage	230MB approx. 200 images
	Compatible memory cards (option)	Compact Flash, SD Card, Memory Stick With 512MB, approx. 500 images
Lighting	Light source	White (can be changed to a blue LED lighting ring as an option)
	Lighting method	Lateral illumination that can be divided in 4 directions
		Angle can be varied (Option)
		Polarization (Option)
Input	Mouse input	PS/2
	Keyboard input	PS/2
	External remote input	MINI DIN 4 pin connector
Interface	LAN	100BASE-T
	USB	USB (Exclusively for use with the optional printer)
Power	Voltage/frequency	AC85~132V, 170~265V 50/60Hz
	Power consumption	200VA
Environment resistance	Environmental temperature for use	+5~40°C
	Environmental humidity for use	35~80%RH (non condensing)
Weight	Approx. 13kg	
Dimensions	W370mm X H450mm X D320mm	

* External keyboards (for Windows) other than this product's software keyboard may be attached.

* The specifications and exterior may be altered without notice for the purpose of improvement.

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