



Anyone can use/Speedy operation/Accurate measurement

# Polariscope

## Fullauto StrainEye LSM-9100 product family

Up to 3,000nm of wide retardation is measurable.  
Best for inspection of plastic products having big strain.

Meets customers' needs for measuring various residual stresses by observing strain in products made from glass or plastics and analyzing stress directions with built-in high-quality optical filters manufactured in-house.



LSM-9100W



LSM-9100WS

# “Visualization” of strain

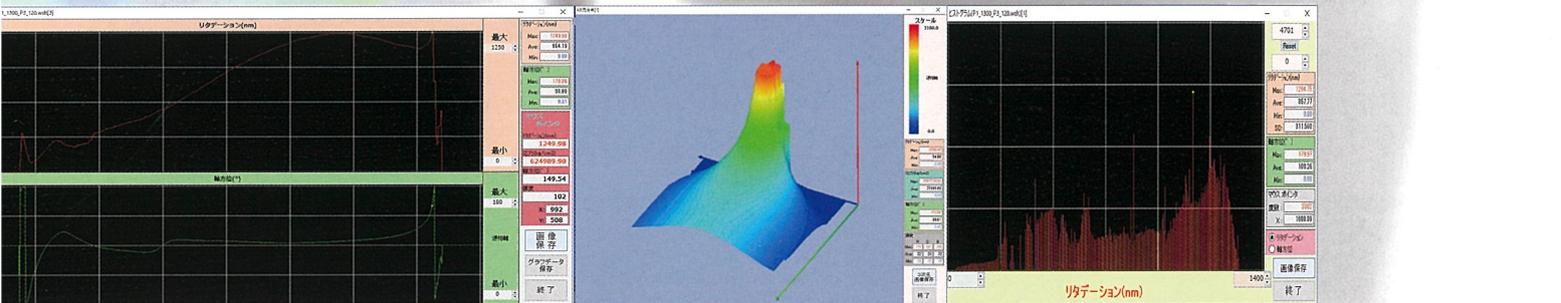
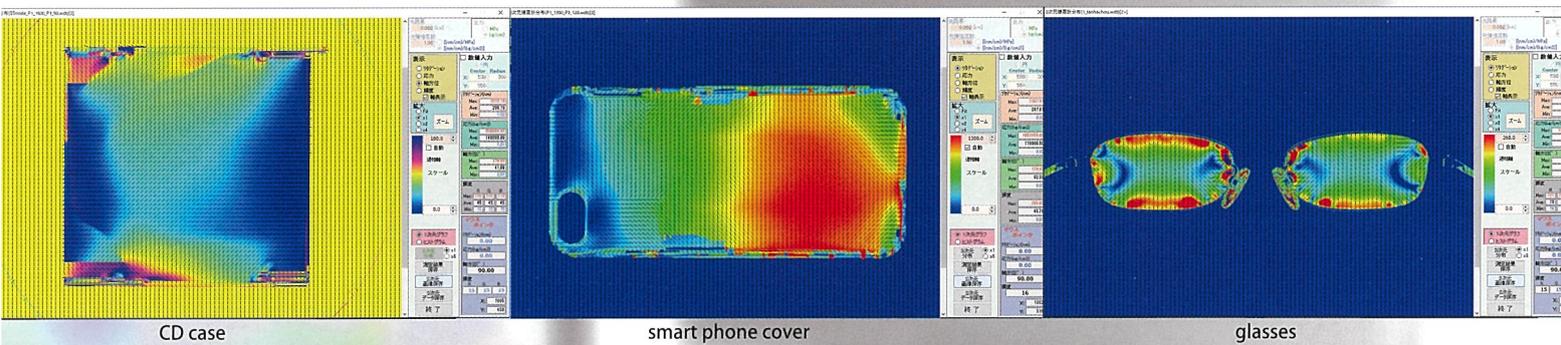
【Anyone can use】

【Speedy operation】

【Accurate measurement】

Polariscope LSM-9100 product family

measures "invisible non-uniform force" in transparent materials, especially plastic products  
by wide measurement range up to 3,000nm and  
solves various problems associated with "strain" speedy.



## Anyone can easily operate

Measures stress fully automatically just placing a sample in it. Entrust proficient skills to "LSM-9100".

## Accurate measurement at any time.

Our unique technology and know-how that have been cultivated throughout history makes it possible to measure strain very accurate. Products that are required high accuracy because they are transparent, are reliably manufactured.

## Available to various materials

Opportunities to use "LSM-9100" are expanding widely such as measuring strain in plastic products, residual stress in glass products, retardance of films and examination for the presence of strain in crystalline materials.

## Everything speedy

Realized speedy performance working in conjunction with a computer for not only preparation time and measurement time but also saving data or graphics.

## Save and cut

The high luminance LED adopted to the light source enables long life and low-power and that reduces maintenance time and running cost.

Plastics products / Synthetic resin	Glass products	
<b>Large resin plate</b> resin film	<b>Large float glass plate</b> automotive glass/industrial new material glass/ optical new material glass,etc.	<b>Material of optical glass</b> crystal/quartz/vitreous material,etc.
<b>Injection-molded resin products</b> LCD monitor cover/sunviser/resin container,etc.	<b>Glass tube</b> various types of lamps/electronic tube(vacuum tube,gas-enclosing tube),sealing glass tube for electronic component/combustion partition for heating appliance	<b>Optical glass element</b> optical filter/LD cover glass/ball lens/lens array/ lens/prism/V-groove substrate,etc.
<b>Resin optical elements</b> lens array/lens/prism,etc.	<b>Laboratory glassware</b> flask and beaker/test tube and connecting tubule/analysis component/evaporating dish/ watch glass,etc.	<b>Glass container</b> vial/bottle for beverage/wide-mouth bottle/ preservation container/cup/dish,etc.

## Product Feature

### 1 Display a distribution chart that is associated with values and directions of strain.

Distribution chart is composed of data per pixel taken by the embedded digital camera restoring the result on the computer monitor.

### 2 Promptly display a distribution chart

Some of instruments take long time to make a distribution chart by mapping data based on multiple measurement, however, LSM-9100 products enables it by single measurement.

### 3 Adopt in-house polarization elements(polarizer/wave plate) in LSM-9100 products.

LUCEO has produced polarizers and wave plates for over 50 years. High quality polarization elements manufactured in our factory are used in LSM-9100 products. These elements significantly reduce factors of negative effects for measurement.

### 4 LSM-9100 product is selectable according to a sample dimension.

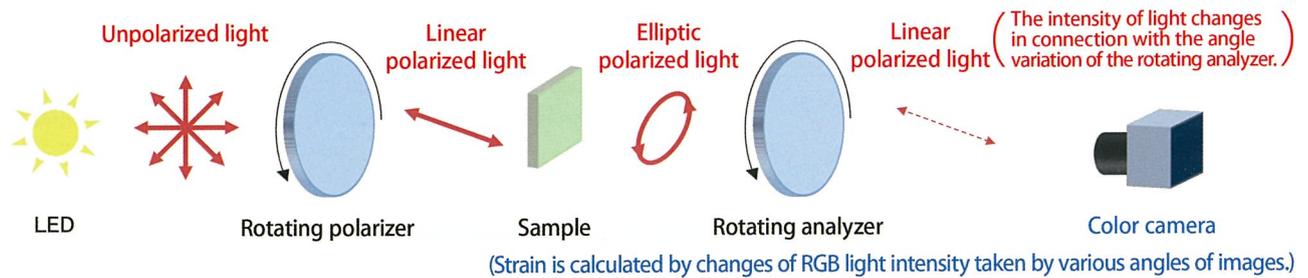
#### LSM-9100W

Measurement Area:  $\phi 150$ mm  
Basic model, suitable for bigger samples

#### LSM-9100WS

Measurement Area: (10×10mm ~ 60×60mm)  
Available to smaller samples by magnifying sample images with 6 times zoom lens.

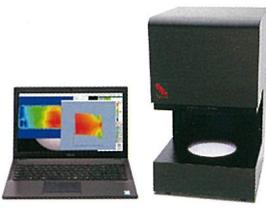
# The principle of measurement for RGB Linear Polarization Method



**Higher value of retardation is measurable.**

Our original RGB Linear Polarization Method realizes measuring 0~3,000nm of retardation and directions of slow or fast axes taking advantage of data that are captured by three different wavelengths of light sources. Available for measuring stress directions of strain, setting a molding condition and process control of resin molding products.

## Specifications

Model name	 LSM-9100W	 LSM-9100WS
Size (body)	W300xD353xH540mm	W300xD353xH580mm
Weight (body)	22kg	24kg
Sample placement space (height)	0 ~ 160mm	0 ~ 115mm
Measurement range	0 ~ 3,000nm	
Inspection method	RGB Linear Polarization Method	
wavelength of light source	420 ~ 680nm	
Repeat accuracy (Pixel)	at the 1-wavelength measurement: $\sigma < 1\text{nm}$ , at the 3-wavelength measurement: $\sigma < 3\text{nm}$	
Measurement area size	$\Phi 150\text{mm}$	variable (60x60mm ~ 10x10mm)
Effective pixels	1,100x1,100	
Light source	High-Luminance LED	
Power source	AC100-240V, 50/60Hz DC 入力 24V 1.6A	
Power consumption (body)	35W	38W
Component	Main body, computer, cables	
Accessory	Main body cover	
Option	—	2 Times Extension Lens (Available size 30x30mm ~ 5x5mm)
OS	Windows10(64bit) Japanese/English	

※ The machines are available for test samples which are transmissive 420nm-680nm wavelength of light. Unavailable for a low transmissivity or an unclear product by light diffusing.  
 ※ Product specs are subject to change without notice.

**For more accurate measurement.**



The mechanism is provided to the instruments not to be measured unless the chamber is closed. Unnecessary light is eliminated and a stable accuracy is obtained by this mechanism. In the case of measuring a large sample that is beyond the chamber size, the darkroom mode is available without closing the chamber.

**LUCEO has been a specialist of optical instruments for over 50 years from its establishment.**

LUCEO is the pioneer who produces polarizers and wave plates by gluing in-house optical films to optical glass. We provide product portfolio taking advantage of polarization technologies adapting to the changing social needs consistently.

 **luceo co., ltd.**

30-9 Ohyamakanai-cho, Itabashi-ku, Tokyo, 173-0024, Japan  
 TEL: +81-3-3956-4111 FAX: +81-3-3956-2335  
[www.luceo.co.jp](http://www.luceo.co.jp)



In LUCEO showroom, you can experience demonstrations of inspection and measurement looking closely at our various products. Please contact us.