

Zoom Microscope

Ultra Long Working distance Zoom Microscope

LWZ/LWZ-M
ULWZ/ULWZ-M

LWZ/LWZ-M



W2007

Microscope unit with combination of high resolution objective lenses and 12× zoom range. This single unit covers from the overall image check to the magnified observation.



- The light, compact body is suitable for assembly in a small space.
- A single unit can cover everything from confirmation of the whole image to enlarged observation, with a zoom ratio 12× for optical performance.
- Coaxial epi-illumination, which is regularly mounted on the product, enables the observation of bright fields.
- Dark fields can be observed by using optional products, ring light guides and partial emission cassettes. **Reference** A017
- The lineup also includes motorized type suitable for embedding in equipment or for automatic measurements.
- Manual type is switching the magnification manually and consisting of the zoom lens tube (SZL) and objective lens (ZOL series).
- Motorized type is switching the magnification by controller and consisting of the zoom lens tube (SZLM), the objective lens (ZOL series), the switching controller (GIP-101) and the zoom control cable (ZCA-2).
- C mount 1/2-inch camera is supported.

Specifications

Manual type Part Number	LWZ-15	LWZ-30	LWZ-50
Motorized type Part Number	LWZ-15M	LWZ-30M	LWZ-50M
Optical magnification	1.25 – 15×	2.5 – 30×	4.16 – 50×
N.A.	0.03 – 0.2	0.06 – 0.36	0.1 – 0.45
WD [mm]	46.2	35.2	14
Image size [mm]	φ8 (for 1/2 inch sensor size, C mount)		
Corrected Wavelength range [nm]	400 – 700		
Actual field of view [mm]	6.4 – 0.5	3.2 – 0.3	1.9 – 0.2
Resolution (at Mercury e-line) [μm]	11.18 – 1.68	5.59 – 0.93	3.36 – 0.75
Depth of field (at Mercury e-line) [μm]	±305.6 – ±6.9	±76.4 – ±2.1	±27.5 – ±1.4

ULWZ/ULWZ-M



W2008

Maximum working distance of 500mm.
Suitable for observing the inside of vacuum chambers and ovens in the special environment.



- Light, compact body is suitable for assembly in a small space.
- A single unit can cover everything from confirmation of the whole image to enlarged observation, with an optical performance of zoom ratio 12×.
- The optical magnification and stroke distance can be easily changed by assembling and or replacing the front converter lens (ULWZ-100 is not supported).
- Coaxial epi-illumination, which is regularly mounted on the product, enables the observation of bright field.
- The lineup also includes an motorized type suitable for embedding in equipment or for automatic measurements.
- Manual type is switching the magnification manually and consisting of the zoom lens tube (SZL) and objective lens (UZOL/UFCL series).
- Motorized type is switching the magnification by controller and consisting of the zoom lens tube (SZLM), the objective lens (UZOL/UFCL series), the switching controller (GIP-101) and the zoom control cable (ZCA-2).
- C mount 1/2-inch camera is supported.

Specifications

Part Number	ULWZ-100	ULWZ-200	ULWZ-300	ULWZ-400	ULWZ-500
Part Number	ULWZ-100M	ULWZ-200M	ULWZ-300M	ULWZ-400M	ULWZ-500M
Optical magnification	1.25 – 15×	0.58 – 7×	0.37 – 4.48×	0.28 – 3.41×	0.23 – 2.74×
N.A.	0.03 – 0.2	0.014 – 0.08	0.009 – 0.052	0.007 – 0.039	0.006 – 0.032
WD [mm]	101	206	305	404	502
Image size [mm]	φ8 (for 1/2 inch sensor size, C mount)				
Corrected Wavelength range [nm]	400 – 700				
Actual field of view [mm]	6.4 – 0.5	13.8 – 1.1	21.6 – 1.8	28.6 – 2.3	34.8 – 2.9
Resolution (at Mercury e-line) [μm]	11.2 – 1.7	24.0 – 4.2	37.3 – 6.5	47.9 – 8.6	55.9 – 10.5
Depth of field (at Mercury e-line) [μm]	±305.6 – ±6.9	±1403 – ±43	±3395 – ±102	±5612 – ±181	±7639 – ±269

Application Systems

Optics & Optical Coatings

Holders

Bases

Manual Stages

Actuators

Motorized Stages

Light Sources

Index

Microscope Unit

Alignment

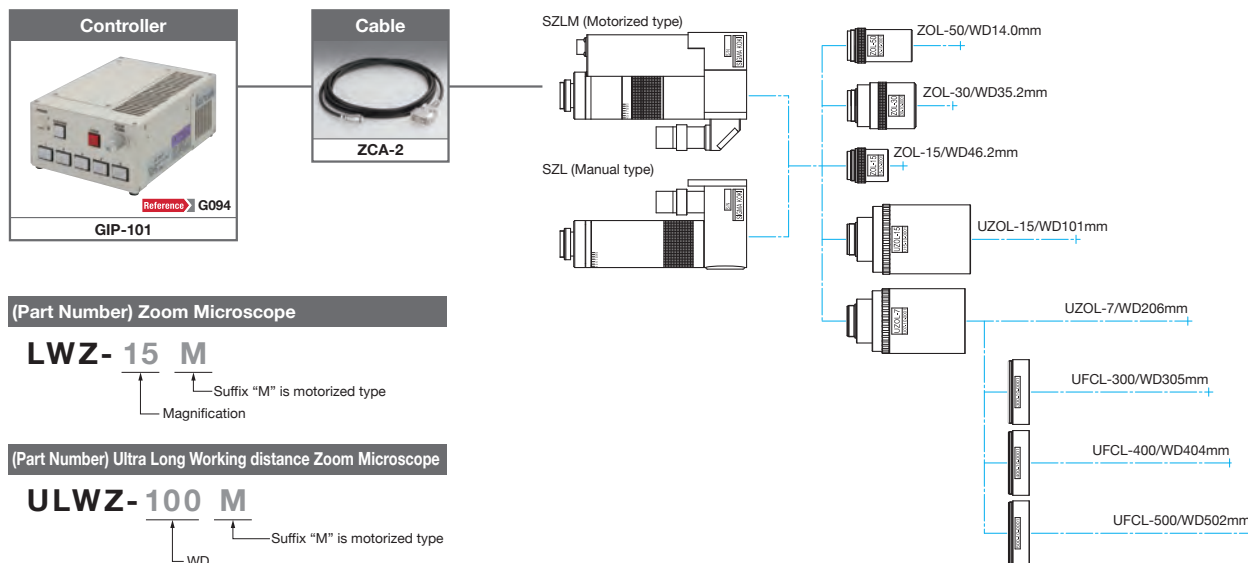
Interferometers

Inspection/Observation

Bio-photonics

Laser Processing

System Diagram

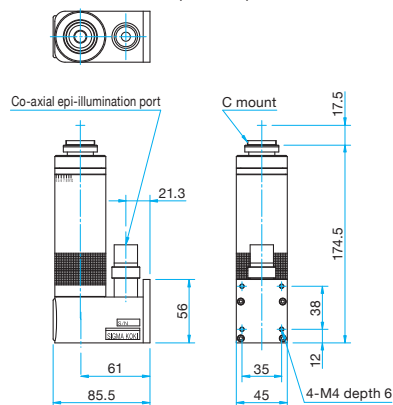


Outline Drawing

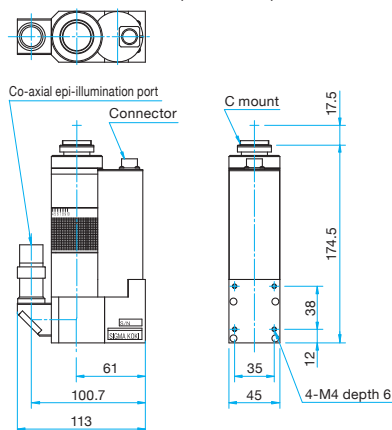
(in mm)

Zoom Lens Tube

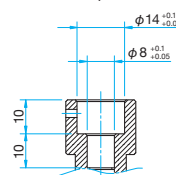
SZL (Manual)



SZLM (Motorized)

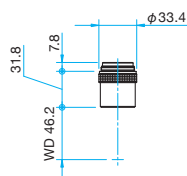


[Detail of co-axial epi-illumination port]

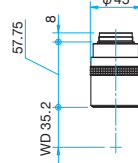


Long working distance objective lenses

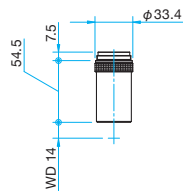
ZOL-15



ZOL-30



ZOL-50

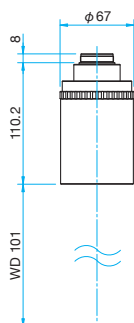


Long working distance objective lenses

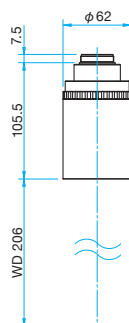
Part Number	ZOL-15	ZOL-30	ZOL-50
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Ultra Long working distance objective lenses

UZOL-15

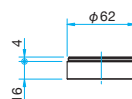


UZOL-7



Front convertor lenses

UFCL-300/400/500



Ultra Long working distance objective lenses

Part Number	UZOL-15	UZOL-7
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Front convertor lenses

Part Number	UFCL-300	UFCL-400	UFCL-500
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Zoom Microscope Option

Rear converter lens | ZRCL

Catalog Code **W2037**

By mounting this rear converter lens between the camera and lens barrel, it will be able to enlarge the optical magnification without changing the working distance.



Specifications

Part Number	ZRCL-1.5	ZRCL-2.0
Magnification	1.5×	2.0×
Camera mount (Lens side / Camera side)	C mount	

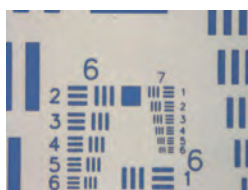
Guide

- ▶ A variety of microscope for C-mount compatible and camera are provided.
Reference (Microscope, Zoom Microscope, OUCI-2, Camera)

Attention

- ▶ It is only for C mount, so it can not be used to the CS mount products such as microscopes, observation systems or cameras.
- ▶ Optical performance and resolution will not be improved even if mounting the rear converter lens. It will be depending on the performance of the microscope.

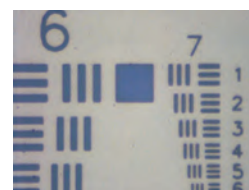
Reference image Zoom Microscope LWZ-15 (Optical Magnification 15×



Without Rear converter
Observation Field of View About 0.55×0.45mm



ZRCL-1.5
Observation Field of View About 0.37×0.3mm



ZRCL-2
Observation Field of View About 0.28×0.22mm

Ring Light Guide | ZRL-ZOL15

Catalog Code **W2038**

It is suitable for the case that you do not want to generate a shadow of the lighting from 360° diagonal direction and that you observe the highlighted unevenness of the surface.

Guide

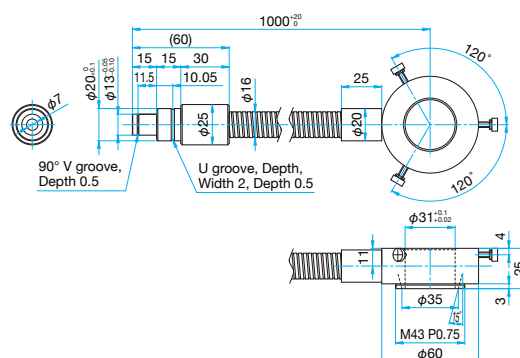
- ▶ A variety of light source is available.
Reference (LED light source, Tungsten Halogen light source and Metal Halide light source)

Attention

- ▶ This product is only for Zoom microscope (LWZ-15/LWZ-15M). If it is used with other products, there is a possibility that optimal illumination can not be done.

Outline Drawing

(in mm)



Focusing unit / Pole stand | ZAS-FAC-PST / PS-S/L

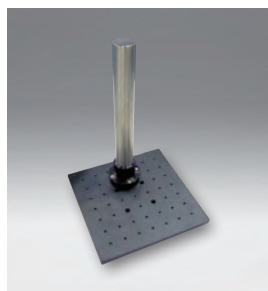
Catalog Code **W2039**

The focusing unit can be installed to the observation unit with coaxial illumination and Zoom microscope. And it can be used as a microscope stand when combined with the pole stand.



Specifications

Part Number	ZAS-FAC-PST
Travel [mm]	30



Specifications

Part Number	PS-S	PS-L
Part Number	PS-S	PS-L

Guide

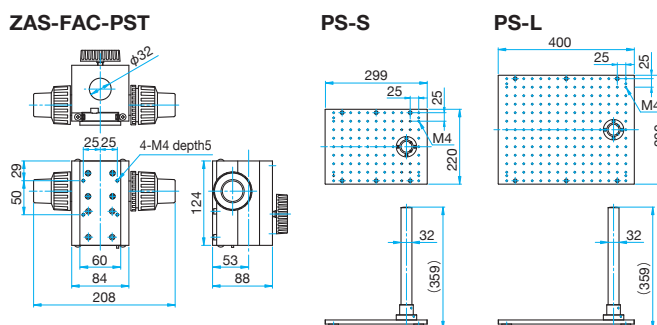
- ▶ It can be installed the manual stage by using the M4 holes on the base plate of the pole stand.

Attention

- ▶ Screws are not supplied with focusing unit for fixing to observation unit with coaxial illumination and zoom microscope.
- ▶ When using a focusing unit and pole stand, please check that required working distance is ensured. ULWZ series is not available for long working distance.

Outline Drawing

(in mm)



Partial light blocking cassette | ZPSC-T1

Catalog Code W2040



Specifications

Part Number	ZPSC-T1
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By blocking the co-axial illumination partially, surface is illuminated with grazing-incidence and microscopic asperity is emphasized during observation

Mounted state to the Lens tub



Theory of partial light blocking

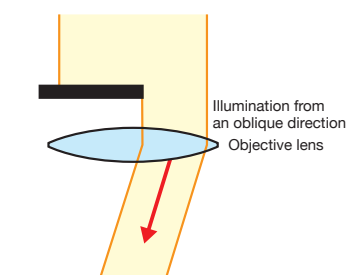
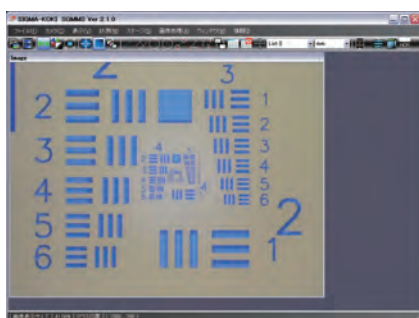


Image measurement software | SGMMSE

Catalog Code W2010

This is an integrated software system that easily can be used by a PC mouse, and it enables to carry out image measurement and analysis, image storage, focus synthesis and so on to support the zoom microscope.

- This software is for image processing and measurement with 2.0 Mega pixels USB2.0 Color Camera (SK-TC202USB-AT). Windows® XP / 7 (32bit) is supported.



Specifications

Part Number	SGMMS
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[Measurement functions]

● Image and video capture

Image by BMP, JPG, GIF, and PNG format and Video by AVI format can be saved.

● Measurement function

It easily measures the size of an object by clicking the mouse on the screen. It can measure the distance between two points, the radius and diameter from the point of three or more points, angle, etc.

● Calibration function

11 types of calibration settings can be registered depending on the magnification of the zoom microscope.

● Camera control

Camera's gain, shutter speed, white balance and reversal can be displayed.

● Line display (cross line, scale display)

HDR (High Dynamic Range Imaging) Function

When observed objects with different reflection, an image can be obtained by reducing the overexposure and underexposure. It can be taken completely the state of the sample.



Normal image



HDR image



Normal image

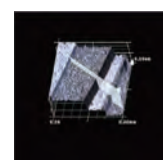
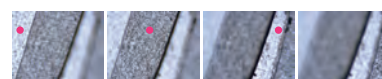


HDR image

Hyperfocus / 3D display function

By using the motorized Z-axis stage, it can take an "in-focus" picture over the entire screen. 3D images can be displayed from the image of the composed focus.

Example of Synthetic Image



3D display

