Z4 Zoom Specifications

Zoom Range
See chart

Field of View
See chart

Zoom Ratio
1:6.5

Working Distance
See chart

Eye tube Inclination
45°

Microscope Head
360° Rotatable

Weight and Dimensions
Z4 Head: 3.35 lbs (1.52kg)
Z4 base: 4.7x` lbs (3.61kg)

Performance Chart

Eyepiece Magnification	Standard Configuration		Supplemental Lenses					
			0.5X		1.5X		2X	
	Working Distance: 100mm		Working Distance: 165mm		Working Distance: 45mm		Working Distance: 30mm	
	Magnification	Field of View	Magnification	Field of View	Magnification	Field of View	Magnification	Field of View
10X/20	7X	28.6	3.5X	57.1	10.5X	19	14X	14.3
	45X	4.4	22.5X	8.9	67.5X	3	90X	2.2
15X/15	10.5X	21.4	5.25X	42.8	15.75X	14.3	21X	10.7
	67.5X	3.3	33.75X	6.7	101.25X	2.2	135X	1.7
20X/10	14X	14.3	7X	28.6	21X	9.5	28X	7.1
	90X	2.2	45X	4.4	135X	1.5	180X	1.1

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LW Scientific

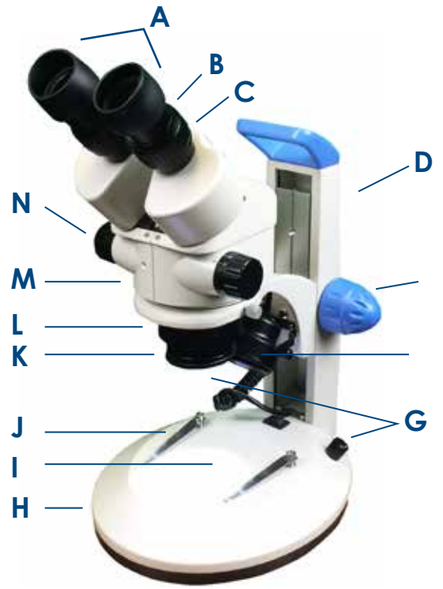
Z4 Zoom Stereoscope

Instruction Manual



Model pictured:
Z4 Zoom Stereoscope

See back page for model specifications.



A	Rubber Eyeguards
B	Eyepieces
C	Diopter Adjustment
D	Post
E	Focus Knob
F	LED Incident Light
G	Variable Brightness Control Knob
H	Base
I	Stage Plate & LED Transmitted Light
J	Stage Clips
K	Nosepiece
L	Objectives (Internal)
M	Support Arm / Head Holder
N	Zoom Control Knob

Z4 Zoom on Pneumatic Arm

48 or 60 Bulb Variable LED Ring Light

Fluorescent Ring Light

Recommended Upgrades:

Ask your authorized LWS dealer about additional accessories

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Assembly and Operation

Your stereoscope has been packed with utmost care to avoid damage in shipping. Retain all of the packing material. If there is damage, please contact the shipping company, as our warranty does not cover shipping damage. If you are uncertain who the shipping company was, please contact the distributor where you purchased the stereoscope.

Note: If your stereoscope has been exposed to cold weather, please allow time for all the parts to come to room temperature before use. Excess cold can fog the lenses and cause the lamp to fail

1 All parts are packaged in the Styrofoam. Carefully remove the head and the body of the stereoscope and place on a secure surface. Remove the protective plastic wrap from the head and body of the stereoscope. Save the plastic wrap in the Styrofoam container.

2 Put the stereoscope base-stand upright on a sturdy surface. **Note**: Remove the glass plate from circular depression in the base. Peel off the protective plastic covering from the top side of the glass plate and then the protective adhesive paper from the underside. Replace the stage plate.

3 Locate the circular head holder. (If you have the Pneumatic Flex Arm system, please see the included sheet for setup of the arm.) Notice the silver colored thumbscrew on the side of the head holder. Loosen the screw to allow free passage of the objective nosepiece (the black housing that holds the objective lenses) into the circular head holder.

4 Secure the head and base together by inserting the black objective nosepiece into the circular head holder. Once the head is completely seated, tighten the thumbscrew to secure the head is in place.
Note: Do not over-tighten.

5 Remove protective caps from the eyepiece tubes and insert the eyepieces.

6 **Interpupillary Distance Adjustment:** Once you are comfortably seated, adjust the oculars (eyepieces) by moving the eyepiece tubes together or apart until you see only one circle of light.

7 Place your specimen on the center of the stage plate. If necessary, use the stage clips to secure it.

8 Turn on the power switch, and then adjust the incident (upper) light by turning the knob on the left side of the base until you reach the desired light intensity. The brightness control knob for the lower (transmitted) light, which is used with translucent specimens, is on the right side of the base. Do not turn the lower light on until your diopter adjustments are completed.

9 **Diopter Adjustment:** Since you are using a binocular stereoscope, you need to adjust for the normal difference in vision between your two eyes. Your Z4 has dual diopter adjustments which must be initially set. This is a simple but critical adjustment!

To "center" both eye tubes, make certain that the diopter adjustments are turned so that the silver ring on each of the ocular tubes is visible (see image). This ensures that the scope will be parfocal (requiring only slight focusing adjustments) while zooming in and out.

Look through the binocular tubes and bring the specimen into focus. To adjust for differences in your eyes, close your right eye and look into the left ocular with your left eye. Turn the focusing knobs until the image you see with your left eye is clear. Then close your left eye and look into the right ocular with your right eye. Using the diopter adjustment ring on the right ocular tube, adjust your right eye focus until you see a clear, focused specimen. This should only be a slight adjustment.

10 Turn the focusing knobs to adjust pole up and down to focus on specimens of various thicknesses. Your Z4 stereoscope has a dual position focusing rack. (see image) The head holder can be raised to provide additional working space. Simply remove the screw that is located on the metal rack behind the incident (upper) light. Move the head holder up to the higher position and re-secure the head holder with the screw. **Note:** If you are using the 0.5x reducing lens, you will need to attach the head holder in the upper position.

11 **Friction Adjustment:** To increase or decrease tension when raising or lowering the head, adjust the fiction by turning the focusing knobs in opposite directions at the same time until the desired tension is achieved.

12 **Lighting Adjustments:** The incident light has a variable brightness control, as well as an incident angle adjustment. The black housing which holds the bulb pivots up and down to direct the light.

Illumination: Your Z4 comes with long-life LED bulbs which may never have to be replaced. But should replacement be necessary, the upper LED bulb can be accessed by unscrewing the glass lens, and the lower bulb can be accessed by removing the bottom of the stereoscope base. In both cases, the old bulb can be removed and a new one soldered back in place.

Maintenance and Care

Your stereoscope is a precision instrument. Handle it with care, avoiding sudden and abrupt impact or vibration during use or transportation.

Store your stereoscope in a clean and dry environment away from high temperatures and direct sunlight.

Never clean lenses with anything other than an optical lens cloth or lens paper with lens cleaning solution. You can purchase these from our website www.lwscientific.com or at any store that sells eyeglasses or cameras. Using any other cloth or tissue can damage and scratch the glass. Make every effort not to touch the glass optics with your fingers. This will leave oils on the lens that will attract dust. Dust in the nosepiece or in the ocular tube should be blown out using only filtered air (canned air dusters work well).

Do not attempt to clean any internal optics on your own. Only a qualified service technician should perform internal maintenance.

Always cover your stereoscope with the dust cover when not in use.

Any spilled liquid or powder should be cleaned at once.

To keep your stereoscope in top condition for years, LW Scientific recommends having the stereoscope professionally serviced once a year.