



## Unpacking and Assembly

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.

Your **Z4** with the **Embryo-GLO** base is packaged in one carton which holds 5 different boxes. One box contains the head and the eyepieces. Remove this box and set it aside for later. The components to assemble your **Embryo-GLO** base are packaged in the other four boxes.

### Assembling the Base:

- 1 Open the largest carton (labeled SZ-STI 15) which contains the following:
  - Upper base with the stand and focusing rack installed
  - Black and white reversible stage plate
  - Frosted stage plate

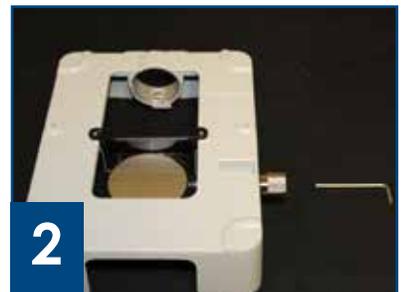
Set the carton and stage plates aside and place the upper microscope base on a stable surface.

- 2 Open the unmarked box which contains the following:
  - Lower Embryo-GLO base
  - Allen wrench

Mounted inside the base you will see a magnifying lens and a double-sided mirror with one clear (shiny) side and one diffused (matte) side for transmitted light.

- 3 Carefully place the upper base on its side on the stable surface and then place the lower base against the upper base so that the mirror and lens are facing inward (toward the upper base) and the circular opening on the back of the lower base is facing toward the back of the upper base. Make certain that the screw holes on the upper and lower bases are aligned, and tighten the screws (pre-mounted in the lower base) using the supplied Allen wrench. Note: Do not over-tighten. Once the top and bottom bases are securely joined, turn the base upright onto your work surface. (It is normal for there to be a slight gap between the top and bottom bases.)

- 4 Open the smallest box (labeled LS SZ-L1) which contains the moveable light assembly and an extra 12v 15w halogen reflector bulb. (Store the extra bulb in a safe place for future use.) The bulb in the light source can sometimes become dislodged during shipping. If this has happened, loosen the silver screw on the outside of the light source until you can remove the inner light housing. Reinstall the bulb by inserting the pins on the bulb into the two holes in the base of the housing. (Follow these same instructions should the bulb ever need to be replaced.) When the bulb is secure, re-insert the bulb housing into the outer sleeve and tighten the silver screw to hold the bulb housing in place. Set aside the light assembly.



5 Open the last box (labeled SZ-T1 20) which contains the light control unit with 4 position brightness control and the adjustable upper illuminator bracket. Set the light control on your work surface.



6 To use transmitted light, insert the moveable light assembly with the silver screw facing upward into the circular opening in the back of the lower base. Push firmly until you hear a click and the light source is in firmly in place. Insert the plug at the end of the light assembly into the receptacle on the back of the light control unit. Plug the cord into the wall.



To use incident lighting, attach the upper illuminator bracket to the silver mounting block on the top of the light control unit. Insert the light assembly into the ring holder. Insert the plug at the end of the light assembly into the receptacle on the back of the light control unit. Plug the cord into the wall.



### Assembling the Head:

- 1 Carefully remove the head from the box and remove the protective plastic wrap from the head. Save the plastic wrap in the Styrofoam container.
- 2 Secure the head and base together by loosening the silver thumb screw on the side of the head holder ring and inserting the head 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.
- 3 Remove protective caps from the eyepiece tubes and insert the eyepieces. Please note that one of the eyepieces has a reticle installed for sizing embryos.

## Operation

- 1 **Interpupillary Distance Adjustment:** Turn on the power switch on the light control unit and then adjust the brightness by turning the 4 position selection knob until you achieve the desired intensity.

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.

Insert the stage plate and place a specimen on the center of it. If necessary, use the stage clips to secure it in place.

Re-adjust the light intensity if desired.

- 2 **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.

Turn the focusing knobs to move the head up and down to focus on specimens of various thicknesses.

## Operation Continued

- Friction Adjustment:** To increase or decrease tension when raising or lowering the head, adjust the friction by turning the focusing knobs in opposite directions at the same time until the desired tension is achieved.
- Lighting Adjustments:** In addition to the brightness control on the light control unit and the choice of the placement of the moveable light source (to achieve either transmitted or incident lighting), the angle of the double-sided mirror in the **Embryo-GLO** base can be adjusted by turning the silver knob on the side of the base to attain the perfect angle and light intensity for your procedure.
- Illumination:** Your Z4 comes with an extra 12v 15w halogen reflector bulb. Should replacement be necessary, please follow the instructions in section 3 above under Assembling the Base. Additional replacement bulbs may be purchased from LW Scientific.

## 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](http://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.

## Z4 with Embryo-GLO Base Specifications

### Zoom Range

See chart

### Zoom Ratio

1:6.5

### Eye tube Inclination

Inclined 45°

### Weight and Dimensions

Height: 15" (381mm)  
Length: 11" (279mm)  
Width: 8" (203mm)  
Weight: 11.95lbs (5.4kg)

### Packaging

Dimensions: 20x18x12"  
(508x457x305mm)  
Weight: 17lbs (7.7kg)

### Field of View

See chart

### Working Distance

See chart

### Microscope Head

360° Rotatable

Eyepiece Magnification	Standard Configuration		Supplemental Lenses					
			0.5X		1.5X		2X	
	Working Distance: 100mm	Field of View	Working Distance: 165mm	Field of View	Working Distance: 45mm	Field of View	Working Distance: 30mm	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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