

- A Rubber Eyeguards
- B Eyepieces
- C Diopter Adjustment
- D Zoom Control Knob
- E Head Holder
- F Hand Rest
- G Stage Plate
- H Embryo GLO Base
- I Mirror Adjustment Knob
- J Double-Sided Mirror
- K Magnifying Lens
- L Post
- M Nosepiece
- N Focusing Knob
- O Objectives (Internal)
- P Light Control Box
- Q Variable Intensity Knob
- R On/Off Switch
- S LED Light
- T Reticle Eyepiece

The Z4 Zoom Stereoscope on the Embryo-GLO Base is the perfect choice for embryo transfer professionals. In a traditional stereoscope base, the bulb is mounted below the stage plate. Because it shines directly upward into the eyes of the user, it obscures the view of the embryos. But the new Embryo-GLO Base eliminates that problem. Its variable LED bulb is mounted in the rear of the base and shines toward a mirror below the stage plate, providing a clear view of the embryos. The user-adjustable tilting mirror allows for indirect lighting through embryos at various angles, illuminating the internal structures of the embryos. The light control box features variable intensity, allowing for brighter light when needed for higher magnifications.

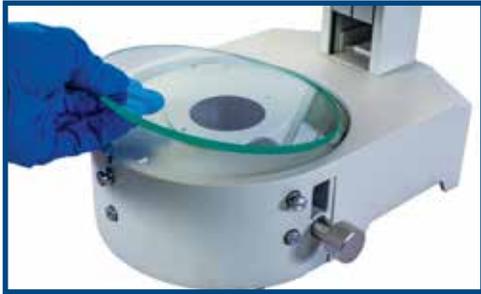
Morphological evaluation of the quality and stage of development of embryos using the Z4 Zoom Stereoscope on Embryo-GLO Base will help to increase fertility rates in embryo transfer programs.

## 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 Carefully remove the Z4 head and accessories and place on a secure surface.
- 2 Put the Embryo-GLO base upright on a sturdy surface. Carefully place the glass stage plate into position on the base. Slide the plastic hand rest down over the 3 silver pins until flush with the surface of the base.



- 3 Loosen the silver thumbscrew in the headholder (focus rack) to allow free passage of the Z4 head into the circular head holder.
- 4 Secure the head and base together by inserting the Z4 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.**
- 5 Remove protective caps from the eyepiece tubes and insert the eyepieces. Remove the cap from the bottom of the Z4 head. For measuring, use the additional reticle eyepiece.
- 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.
- 8 Turn on the power switch, and then adjust intensity by turning the knob on the control box.
- 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 stereoscope 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 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.
- 11 Illumination:** Your Z4 comes with a long-life LED bulb which may never have to be replaced. If necessary, the bulb assembly can be removed and replaced.
- 12 Tilting the Mirror:** The Embryo-GLO base is equipped with a two-sided mirror. One side is clear and one side is Frosted. To switch between the sides and adjust the tilt of the mirror, simply turn the silver mirror adjustment knob on the side of the Embryo-GLO base.



**Clear**



**Frosted**

## Maintenance and Care

Your Z4 stereoscope is a precision instrument. Handle it with care, avoiding sudden and abrupt impact or vibration during use or transportation.

Store your Z4 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 Z4 stereoscope with the dust cover when not in use.

Any spilled liquid or powder should be cleaned at once.

To keep your Z4 stereoscope in top condition for years, LW Scientific recommends having the Z4 stereoscope professionally serviced once a year.

## Z4 with Embryo-GLO Base 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)

Embryo-GLO Base: 19 lbs (8.62kg)

## Performance Chart

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

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