

# Eco D-ELS-1 Stereo Microscope

## Instruction Manual



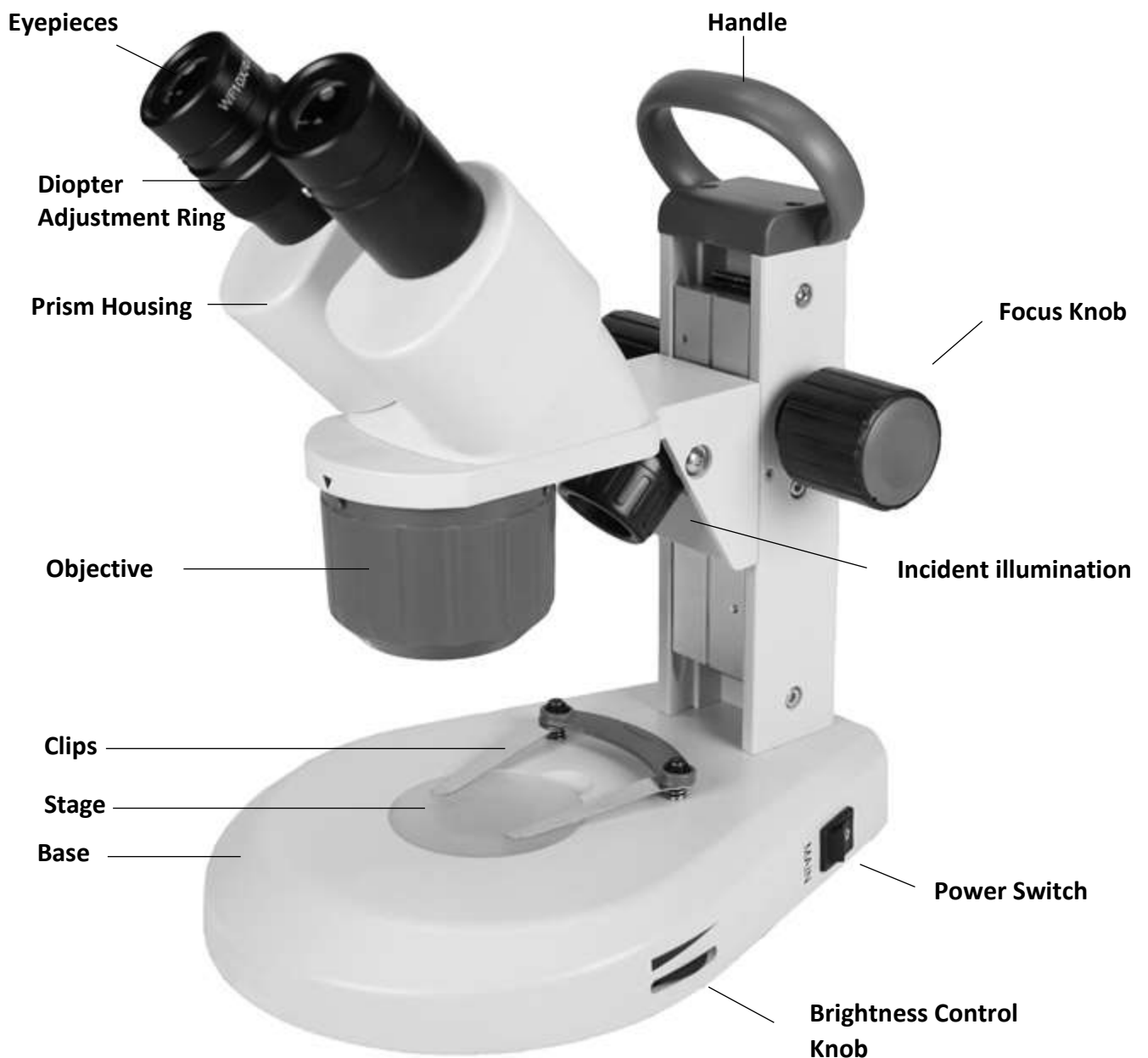
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# 1. Application

Designed for a widespread usage in the electronic industry, for the assembling and testing of precision instruments, dissections in biology or for observation and research work. At the same time this product is suitable for schools, scientific research, factories, engraving work, geology, archaeology or just for the use at home.

# 2. Nomenclature



### 3. Specifications

<b>Eyepieces</b>			<b>WF10X</b>
<b>Objective</b>	<b>1X</b>	<b>Field of View</b>	<b>20</b>
		<b>Optic Working Distance</b>	<b>57</b>
	<b>2X</b>	<b>Field of View</b>	<b>10</b>
		<b>Optic Working Distance</b>	<b>80</b>
	<b>4X</b>	<b>Field of View</b>	<b>5</b>
		<b>Optic Working Distance</b>	<b>57</b>

#### 3.2 Input Voltage and Power

- **Input: 100V~240V/4.5V 1A**
- **On/Off Power Supply**

#### 3.3 Illumination

- **Illumination 3.5V /1W LED**
- **Transmitted Light 5 x 20mA LED**

#### 3.4 Mechanical

- **Tilted tube 45° Binocular Head**
- **Right and left eyetube can be adjusted to +/- 5 diopter**
- **Emerged adjustment range of interpupillary distance 54~76 (mm)**

#### 3.5 Standard Configuration and Specification

<b>Model</b>	<b>Eyepieces</b>	<b>Magnification</b>	<b>W.D</b>
<b>D-ELS-1</b>	<b>WF10X (20)</b>	<b>1x, 2x, 4x</b>	<b>48mm</b>

## 4. Operation

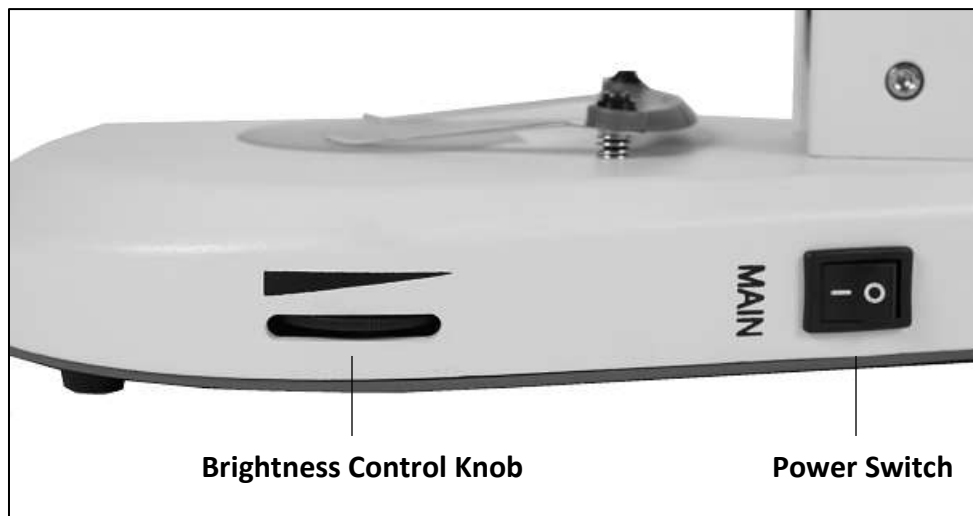
### 4.1 Working Environment

Avoid placing the instrument in locations exposed to direct sunlight, dust, vibration, high temperature and high humidity and where it is difficult to unplug the power supply cord.

- Indoor Use
- Dry place without dust, room temperature  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$

### 4.2 Light Intensity Control

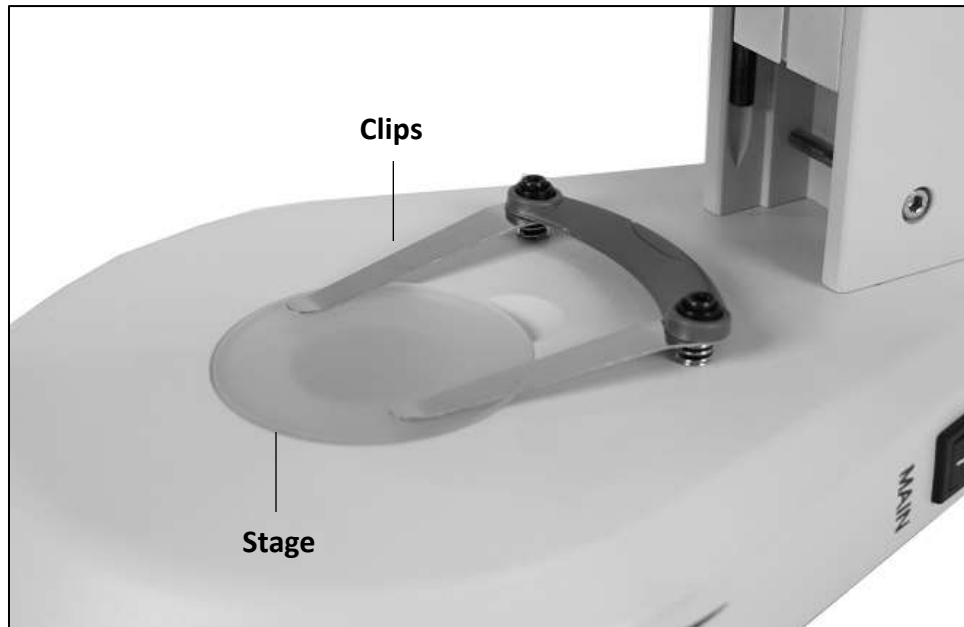
Insert the **100V~240V/4.5V 1A** power supply plug into the socket and turn on the power supply switch. Turn the brightness control knob to control the intensity of the light.



### 4.3 Select a Work Stage

A frosted glass stage plate is provided with the microscope and can be installed directly in the base. This stage can be used for transparent or almost transparent samples. Stage clips are provided if a specimen slide (cover glass up), is used.

A black and white stage plate is also provided. Place the white side of the stage plate up for normal usage. In case the specimen is white or any other bright color, place the black side of the stage upwards to reach an optimum contrast. Adjust the light intensity as needed.



#### **4.4 Sample Placement**

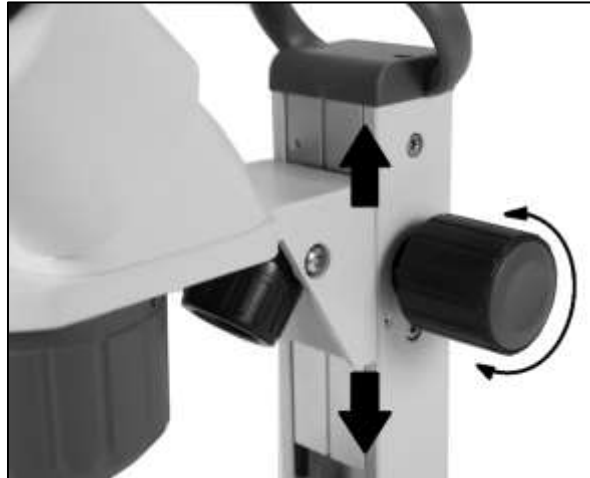
Place the clean sample on the middle of the work stage, if necessary; press the sample into the clips.

#### **4.5 Eyecups Usage**

A pair of eyecups are provided with the microscope, ready for usage when they are needed. Just place the eyecups on the top of the outer edges of the eyepieces. The eyecups support the observer's eyes to stay in a fixed position. At the same time they ward astigmatism from entering the observer's field of view.

## 4.6 Focusing, diopter adjustment and Interpupillary distance:

Place the specimen in the center of the work stage and try to put the object roughly in working distance position. Then slowly turn the focus knob until the right eyepiece can observe the object clearly.



Then look into the left eyepiece; if the object is fuzzy, the diopter ring can be adjusted until the object can be seen sharp. While looking through the microscope eyepieces with both eyes grasp eyepiece tube housings with both hands and rotate them on their axis, moving eyepieces apart or together until a full field of view is observed and images blend into one. Interpupillary distance is now corrected for your own inter-ocular distance and does not require further adjustment later unless another user changes this adjustment.



## 4.7 Changing Magnification

There are three objective magnifications for the D-ELS-1 stereo microscope:

The microscope objective can be turned 120 degrees to shift the magnification.

Just turn the objective turret cover to the next fixed position point and the magnification will follow.

Total Magnification = Eyepiece magnification X Zoom magnification X Objective Lens magnification.





## **5. Maintenance and Care**

### **5.1 Do not disassemble**

- Disassembly may significantly affect the performance of the instrument, and result in electric shock or injury and will void the terms of the warranty.
- Never attempt to dismantle any parts other than described in this manual. If you notice any malfunction, contact your microscope supplier.

### **5.2 Cleaning the microscope**

#### **5.2.1 Lenses and filters**

- To clean lens surfaces or filters, first remove dust using an air blower. If dust still persists, use a soft/clean brush or gauze.
- A soft gauze or lens tissue lightly moistened with a mixture of alcohol and ether (ratio: alcohol: 3 and ether: 7) should be used to remove grease or finger prints.
- Do not use same area of gauze or lens tissue to wipe more than once.

#### **5.2.2 Cleaning of painted or plastic components**

- Do not use organic solvents (thinners, alcohol, ether, etc.) Doing so could result in discoloration or in the peeling of paint.
- For stubborn dirt, moisten a piece of gauze with diluted detergent and wipe clean.
- For plastic components, only moisten a piece of gauze with water and wipe clean.

### **5.3 Disinfecting the Microscope**

- Follow the standard procedures for your laboratory.

### **5.4 When not in Use**

- When not in use, cover the instrument with vinyl dust cover and store in a place low in humidity where mold is not likely to form.
- Proper handling of the microscope will ensure years of trouble free service.
- If repair becomes necessary, please contact your microscope dealer.

### 5.5 Changing the Battery

**Warning:** For your own safety disconnect the plug of the power supply switch first before changing the battery. Open the battery box and remove the old batteries and insert the new batteries. Make sure the batteries are inserted in the proper electrode direction. Close the cover of the battery box when you are finished.

