

# User Manual

## Portable Inverted Compound Microscope

Model M615INV



[MicroscopeNet.com](http://MicroscopeNet.com)

# Table of Contents

i. Caution.....	1
ii. Care and Maintenance.....	1
1. Component Illustration.....	2
2. Installation .....	3
3. Operation.....	3
4. Specifications.....	4
5. Troubleshooting Guide.....	5

## i. Caution

1. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure the microscope is located on a smooth, level and firm surface.
2. If any specimen solutions or other liquids splash onto the stage, objective or any other component, switch the power off immediately and wipe up the spillage. Otherwise, the instrument may be damaged.

## ii. Care and maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.
2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. **Do not use organic solvents for cleansing.**
3. The outer surface of the optics should be inspected and cleaned periodically using an air stream from an air bulb. If dirt remains on the optical surface, use a soft cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton wound on the end of a tapered stick makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

# 1. Components Illustration

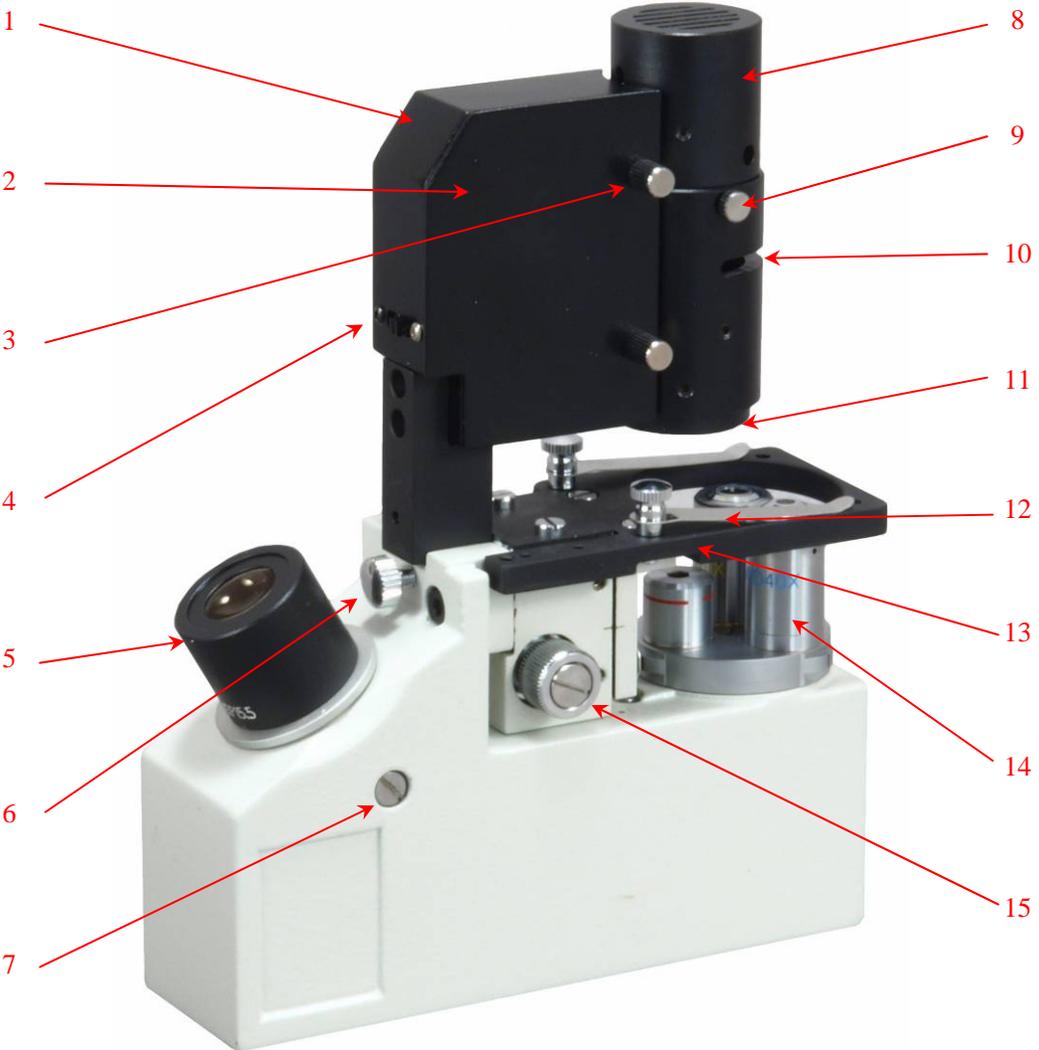


Fig.1

- |                             |                        |                 |
|-----------------------------|------------------------|-----------------|
| 1. Battery Compartment      | 6. Thumb Screw         | 12. Stage Clips |
| 2. Battery Comp. Cover      | 7. Eyepiece Hold Screw | 13. Stage       |
| 3. Battery Comp. Lock Screw | 8. Light Housing       | 14. Objective   |
| 4. Power Switch             | 9. Thumb Screw         | 15. Focus Knob  |
| 5. Eyepiece                 | 10. Filter Slot        |                 |
|                             | 11. Condenser          |                 |

## 2. Installation

This portable inverted microscope is consisted of two parts: the upper illumination part and the lower main body part.

- 2.1 Install the upper part: insert the pin at the bottom of the illumination part into the hole on the main body part. Tighten the thumb screw (6).
- 2.2 Install the clips: insert the pins of the 2 clips (13) into the mounting holes on the stage (14).
- 2.3 Install the batteries: turn off the 2 lock screws (3) of battery compartment cover (2), remove the cover (2) and install 2 AA batteries. Then put back the cover (2), tighten the screws (3).



Fig.2

## 3. Operation

- 3.1 Turn the desired objective (14) into the light path.
- 3.2 Pull the eyepiece (5) up to the end, hold the metal collar and turn clock-wise to lock the eyepiece. This is the working position of the eyepiece.
- 3.3 Slide the power switch (4) to turn the light on.
- 3.4 Place Specimen (dish or slide) on the stage (13). If it is a slide, ensure the side with cover slip is faced up and gently secure the slide by the stage clips.
- 3.5 Turn the focus knob (15) to get a clear image.
- 3.6 Move the specimen (dish or slide) on the stage slowly to find the interesting spot.

## 4. Specifications

Model	M615INV
Total Magnification	40X, 100X, 400X
Eyepieces	A wide field eyepiece W10X/FN18.0, EP15.5
Nosepiece	Revolving triple
Objectives	4X, NA 0.08, working distance 16 10X, NA 0.25, working distance 3.6 40X, NA 0.6, working distance 0.6
Condensers	Built-in
Focus Mechanism	Focus knobs on both side Range 2.6 mm
Stage	Plain stage with 2 clips Dimension: 1-3/4" x 2-1/4" (45 mm x 57 mm) Wide opening: 1-5/8" (42 mm) in diameter
Illumination	0.1W LED light
Power Supply	2 AA batteries
Dimension	5-1/2" x 1-3/4" x 7-1/4" (140mm x 45mm x 184.5mm)
Net weight	2 lb 4 oz (1.03 kg)

## 5. Troubleshooting Guide

### OPTICAL PROBLEMS

<b>Problems</b>	<b>Cause</b>	<b>Solution</b>
The edge of the field of view has shadow or the brightness is asymmetry.	The nosepiece is not in the right position.	Adjust it until a “click” heard
	The surface of the lens is contaminated (condenser、 objective、 eyepiece).	Clean the lenses.
Find dust and stain in the field of view.	The surface of the lens is contaminated (condenser、 objective、 eyepiece).	Clean the lenses.
	There are stains on the specimen.	Clean the specimen
The image is defocused or low-resolution.	The specimen is on the reverse side.	Turn it around.
	The surface of the lens has contaminant (condenser、 objective、 eyepiece).	Clean the lenses.
The image focus surface incline (one side is clear and the other side is faint).	The nosepiece is not in the right position.	Turn the nosepiece till a “click” heard
	The specimen is not correctly placed.	Fix the specimen firmly on the stage
The image move when focusing	The specimen is floating on the stage.	Fix the specimen firmly on the stage
	The nosepiece is not in the right position.	Rotate the nosepiece till a “click” heard
The light intensity is not enough.	The opening of Aperture diaphragm is too small.	Adjust it again.
	The surface of the lens is contaminated (condenser、 objective、 eyepiece、 Collector lens).	Clean the lenses.
Field of view too small	The eyepiece is not pulled out	Pull the eyepiece outward to its end

**MECHANICAL PROBLEMS**

<b>Problems</b>	<b>Reason for problem</b>	<b>Solution</b>
The image can't focus using high-power objective.	The glass slide is too thick.	Use normal thickness slide glass (1~1.5mm) .
The objective touches the cover glass when it changes from low power to high-power.	The glass slide is too thick.	Use normal thickness slide glass (1~1.5mm) .

**ELECTRICAL PROBLEMS**

<b>Problems</b>	<b>Reason for problem</b>	<b>Solution</b>
The lamp doesn't work.	No power supply.	Change batteries
	The lamp burn out.	Replace the lamp with a new one
The height of the brightness is not enough.	Low battery.	Change batteries.