

User Manual

Phase Contrast Kit

Model A1PHD



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

## i Caution

1. Keep the phase contrast kit out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
2. Do not attempt to disassemble any components, like telescope, objectives or condenser.
3. Keep the kit 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.**
4. 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 the 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.
5. Store the instrument in a cool, dry environment. Put the kit back to the storage box when not in use.

## 1 Parts Illustration



Fig. 1

- |                             |                        |
|-----------------------------|------------------------|
| 1. Phase Contrast Objective | 3. Condenser           |
| 2. Condenser Ring Plate     | 4. Centering Telescope |

## 2 Installation & Operation

### 2.1 Installing the Phase Contrast kit

- 1) Replace the bright field objective(s) on nosepiece with the phase contrast objective(s) (1).
- 2) Thread the condenser ring plate (2) onto the condenser (3) as shown in Fig.2.
- 3) Loosen the thumb screw in Fig.3; take off the original condenser from the holder.
- 4) Insert the phase contrast condenser into the condenser holder as shown in Fig.3, tighten the thumb screw.



Fig.2

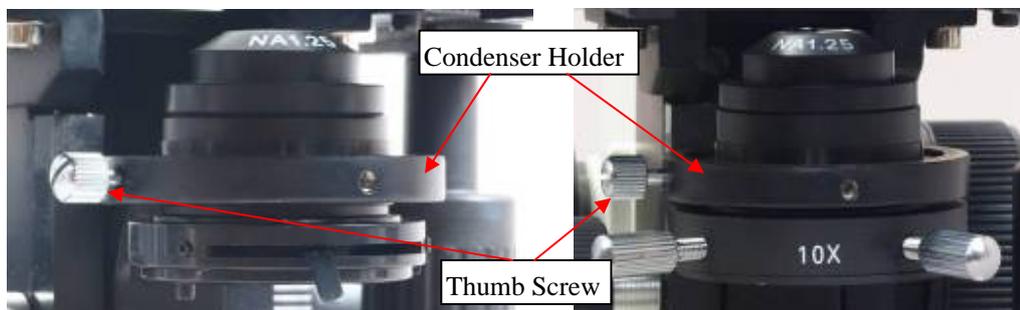


Fig.3

**Note:** there are 3 phase contrast objectives: 10X, 40X and 100X, and there are 3 condenser ring plate: 10X, 40X and 100X. The corresponding objective and ring plate must work together, i.e. **10X** phase contrast objective must work with **10X** condenser ring plate, and so on.

### 2.2 Centering the condenser ring plate

- 1) Connect the power cord to the microscope and insert the plug into a power outlet.
- 2) Turn the desired phase contrast objective into light path.
- 3) Choose the ring plate that corresponding to the phase contrast objective in light path and screw it on the condenser (3).
- 4) Replace the brightfield condenser with the phase contrast condenser with ring plate on.
- 5) Remove one eyepiece from the microscope eyepiece tube and insert the centering telescope (4).
- 6) Turn the light of microscope on and observe from the telescope.
- 7) Turn the top of the telescope (Fig.5) until the dark ring image is in focus. If the dark ring is hard to find, put a normal white print paper on the stage and under the

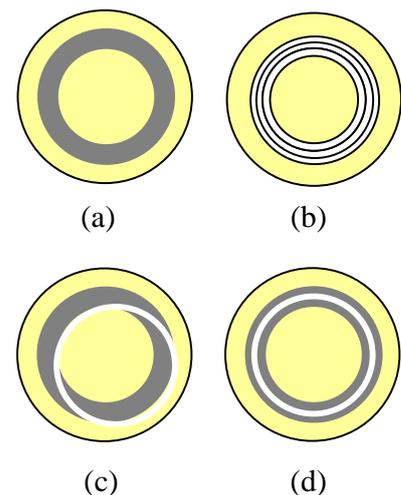


Fig.4

objective then you will see the dark ring as shown in Fig.4 (a).

- 8) If the bright ring is still obscure as in Fig.4 (b), raise or lower the condenser by adjusting the condenser focusing knob (or the microscope focusing knob if necessary) till the bright ring is in focus and the dark ring is visible.
- 9) If the two ring images are not coincided as shown in Fig.4 (c), adjust the two centering screws on the condenser ring plate (2) till the two rings are coincided with each other as shown in Fig.4 (d)
- 10) Remove the centering telescope (4) and replace the eyepiece.



Fig.5

### 2.3 Performing the phase contrast observation

After you center the ring plate, you can perform the phase contrast observation the same way as a normal bright field microscope.

**Note:** when change to another phase contrast objective and corresponding condenser ring plate, the focusing and centering of bright ring and dark ring should be repeated following the procedures from 2.2-2) to 2.2-8).

**Tips:**

1. Make the illumination as bright as possible.
2. The thinner the specimen, the better the image.

## 3 Specifications

Model	A1PHD
Phase Contrast Objective	Achromatic 10X/0.25, 160/0.17 with built-in phase plate Achromatic 40X/0.65, 160/0.17 with built-in phase plate, spring Achromatic 100X/1.25, 160/0.17 with built-in phase plate, spring, oil
Condenser	NA1.25
Annular Ring Plates	1 For 10X phase contrast objective 1 For 40X phase contrast objective 1 For 100X phase contrast objective
Centering Telescope	Focusing adjustable