

UNICO®



IP730 Series

COMPOUND MICROSCOPE
OPERATION MANUAL

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UNICO® IP730 Series Microscope

Thank you for choosing the UNICO® IP730 Microscope. This precisely built, durable microscope will give years of service to even the busiest office practice. Our technical and customer support departments are ready to assist you with any questions or comments you may have.

If ever you require an additional accessory or spare part, please contact your local distributor, or you can contact UNICO® for the name of the nearest distributor.

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Unpacking UNICO® IP730 Microscope

Each UNICO® microscope has been packed with utmost care. Please take a moment to examine the outer and inner cartons for any visual damage. We recommend that you keep all of the packing material until you have fully assembled, examined and tested your new microscope. If you note any damage, please contact the shipping company or your distributor.

Unpack your IP730 microscope using the following checklist for the parts and accessories. (Your specific model may vary):

- (1) Microscope stand with NA 1.25 Abbe condenser
- (1) Head options: (Binocular, or trinocular, or dual, or monocular)
- (2) 10x Extra Wide field, High-Eyepoint eyepieces
- (4) Achromatic objectives 4x, 10x, 40xr and 100xr (oil) / (or what you have ordered)
- (2) Replacement fuses (1.5A)
- (1) Dust cover
- (1) Operation manual

If any parts are missing, please contact your UNICO® dealer or call UNICO® customer service at 800-588-9776 or e-mail us at sales@unicosci.com

The UNICO® IP730 Series Microscope

The UNICO® IP730 series microscopes were designed with the user in mind. Whether it is for use in a busy medical or veterinary practice, a research department, or for anyone needing the most versatile microscope available, there is a IP730 to meet your needs.

Objectives:

Each IP730 microscope comes with 4 achromatic DIN flatfield objectives mounted on a reverse position nosepiece (optional *Semi-plan and Plan and Infinity objectives are available*). The color-coded, polished objectives are parfocal and parcentered. The 100X (oil) and the 40X (high dry) are spring loaded to prevent damage.

Oculars:

Two Widefield 10X 20 mm Extra Widefield “High-Eyepoint” eyepieces are included with each IP730 microscope. The specialized High- Eyepoint eyepieces are designed to reduce eyestrain while wearing glasses.

Filter Holder:

A swing-out filter holder is installed under the condenser for holding a blue (or other color) filter to sharpen contrast, which is recommended for routine hematology or urine analysis.

Head:

The head of your IP730 microscope may be binocular or trinocular. The binocular and trinocular heads are Seidentopf inclined 30° style. Each can be set for individual requirements and comfort.

Additional IP730 microscope features:

- Extra-Large mechanical stage (150mm x 180mm) with low mounted coaxial controls. The stage upper-movement limit (safety lock) can be set as desired to protect slides as well as objectives.
- Coaxial coarse and graduated fine focusing knobs with tension adjustment control
- Focusable Abbe condenser (N.A. 1.25) with a graduated Iris diaphragm.
- Pre-aligned illumination and easy lamp replacement, 6 Volt / 20 Watt Halogen
- Universal power input from 110V/60Hz to 230V/50Hz, detachable power cord.

Electronics

UNICO® IP730 microscope uses UL and CSA approved electrical components. The circuit board in the base of the unit contains all the electrical functions. There are no user repairable parts on the circuit board.

Power Input:

AC 115V/60Hz - 220V/50Hz universal.

Output:

6V/20W (Halogen bulb, G4 pin type, replacement item# B6-7006)

Fuse:

A 1.5 Amp fuse protects the circuit board from electrical overload. The fuse case is part of the power inlet socket located in the back of the microscope. When replacing the fuse, always install a new one of the same size and amperage.

IP730 Microscope Assembly Instructions

1. Remove the stand of the microscope and place it on a sturdy, dust free surface. Set the base so that the UNICO® label faces you.
2. Locate the nosepiece (reference page 9 photo with nomenclature), and remove the plastic dust plugs. Save these in individual objective containers.
3. Install the objectives. Each objective is packed in an individual plastic container. Remove each objective from its container, save the containers in the Styrofoam carton. Install the objectives in the following order: 4x, 10x, 40x, and 100x. Make certain that they are screwed in all of the way.
4. Remove the microscope head from the Styrofoam carton. Remove the plastic dust plugs from the eyepiece tubes as well as the protective plastic cover from the head

(save the protective plastic parts). Plug on base the upper part of the arm and secure with the retention screw. Note: Don't over tighten.

5. Unwrap the protective tissue from the eyepieces carefully and slide in each eye tube.
6. Slide holder: The slide holder has already been installed on the mechanical stage. If you ever need to remove the slide holder, locate the holding screws. Loosen the two holding screws and remove the slide holder by sliding forward. When you replace the slide holder, do not over tighten the holding screws.

Using The UNICO® IP730 Microscope

Note: If your microscope has been exposed to temperature extremes, please allow time for all the parts to come to room temperature before turning on the power. Excess cold can fog the lenses and may cause the bulb to fail.

1. Once you have assembled all the parts, plug the power cord into the power inlet at the rear of the arm and plug another end of the power cord into the AC outlet (110V/60Hz – 230V/50Hz).
2. The illumination control (intensity rheostat) wheel is located on the left side of the base. It turns the illuminator On/Off. Turn the control wheel to the brightness desired. To turn off the illumination, simply reverse the turning until you hear a click stop.

Note: Rapid repeated changes in light intensity would dramatically shorten the life of the quartz halogen lamp.

3. In order to speed your familiarity with controls, choose a specimen slide you are familiar with, such as an old hematology slide or a commercially prepared slide. Place the slide into the slide holder by pushing back on the thumb guard and placing the slide toward the back of the holder. Allow the metal slide holder to gently hold the slide in place.

Note: Do not allow the slide holder to “snap-back” against the slide, this could cause the slide to chip or shatter.

4. Move the slide to the center of the stage, by turning the mechanical stage control knobs, just below the stage on the right side. These knobs allow you to move the slide in the X-Y axis (left-right and forward-backward).
5. Open the aperture of the iris diaphragm on the Abbe condenser (controlled by the small black lever on the condenser). Also open the aperture of the iris diaphragm in the illuminator (Koehler Illumination).
6. Once you are comfortably seated, look into the oculars and move the eyepiece tubes together or apart until you see only one complete circle of light. You have now adjusted your **interpupillary distance**. The interpupillary distance range is 55-75mm.

7. **Focusing procedures:**

- 7.1 Bring the 4x objective into working position. As you bring the objective into place, will feel a “stop” (clicking) when the objective is seated properly. Use the coarse and fine adjustment knobs to locate the image and bring the 4x objective into focus.
- 7.2 Move the 10x objective into place. Minor coarse adjustment may be needed yet the fine focusing knob is needed to bring the 10x objective into focus.
- 7.3 Rotate to the 40x objective. Focus with fine focusing knob for the best image.
- 7.4 You will now be in the middle of the focus range. You may have to adjust the aperture diaphragm (on the condenser) for the best contrast.
- 7.5 Immersion oil is required when 100X oil objective is used. Never allow 40X or other dry objectives to touch immersion oil!

Note: Make sure the slide cover glass is 0.17mm or less in thickness.

8. **Diopter adjustment:**

If you are using a binocular microscope, you have to adjust for the normal difference in vision between your two eyes. This is a simple but critical adjustment! IP730 microscope has a diopter adjustment ring located on the left eye tube of the Seidentopf head. Follow the following procedures:

- Set the diopter to “0”.
- Close your left eye and with your right eye open, look into the right ocular.
- Adjust the microscope’s fine focus to give you the best image.
- Close your right eye and look with your left eye into the left ocular.
- Rotate the adjustment (diopter) ring on the left ocular tube until you see a clear focused field.

9. **Focus Tension Control:**

Focus tension has been pre-adjusted at **UNICO®**. If needed, the focus tension can be adjusted at any time without tools. To adjust the tension of your focusing controls, simply turn the tension control ring. This knurled ring is located on the right side between the microscope stand and the focusing knob.

Note: Removing too much tension may cause the stage to drift down.

10. **Mechanical Stage Safety Stop (Upper Limit Setting)**

The safety stop is provided to help prevent objectives and slide damage. The safety stop sets the upper limit movement of the mechanical stage. The safety stop setting screw is located on top of stage driving block (behind the mechanical stage. Refer to the photo with nomenclature on page 9).

The stage upper limit is preset at **UNICO®**. If adjustment is needed, turn the setting screw with a screwdriver to set the desired upper limit.

Note: Improper stage upper limit setting may cause high power objective unable to focus. (The slide should almost touch the top lens of 40X objective (the top lens of the 40X objective is retractable). when the stage is raised to its highest limit).

You are now ready to use your **UNICO® IP730** microscope.

Bulb Replacement

Caution: Always unplug the microscope before changing the bulb.

Allow the microscope to cool down if recently used. Use only a 6V/20W halogen bulb (replacement item#: B6-7006). When handling a new bulb, be sure not to touch the glass portion with your fingers. Oil and sweat on the bulb may cause it to explode or shatter as it heats up.

1. Unscrew the collecting lens assembly to access the bulb. The collecting lens housing is secured to the base with a screw, which is accessible from the bottom of the base.
2. Gently turn the microscope on its side. You will see a thumbscrew with knurled knob. Loosen this locking screw to release the collecting lens assembly.
3. Gently pull the old bulb out and discard.
4. Hold the new bulb with a lint-free tissue or piece of cloth. Gently insert the two metal pins on the base of the bulb into the lamp holder. This is a friction fit and you may have to very gently rock the bulb back and forth as you insert it into the holder. Never attempt to spread the pins, as this will result in immediate damage to the new bulb.
5. Carefully return the microscope to the upright position and plug the microscope into the appropriate AC outlet.
6. The bulb should be centered. If it is not, adjust the lamp socket locking screws and bring the bulb to center.

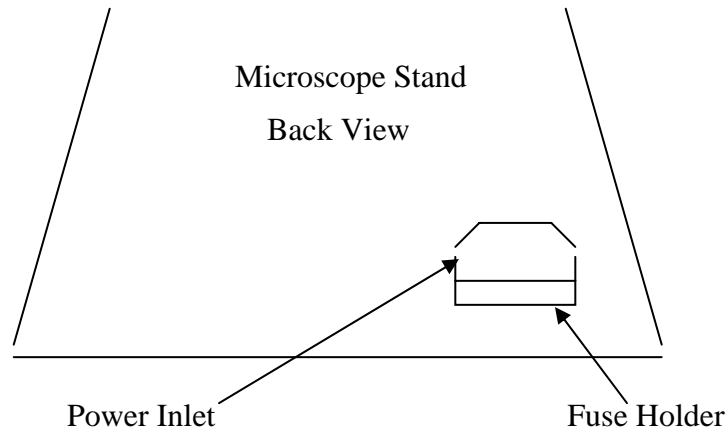
Fuse Replacement

A 1.5 Amp fuse protects the circuit board from electrical overload. The fuse case is part of the power inlet socket located in the back of the microscope. When replacing the fuse, always install a new one of the same size and amperage (replacement item#B3-9005).

Caution: Always unplug the microscope before changing fuse.

Follow the procedures below to replace the fuse:

- a) Unplug the power cord. Turn the illuminator control wheel to “off”
- b) Remove the power cord from the power inlet on the back of the microscope.
- c) Locate the fuse holder. The fuse holder is a part of the power inlet.



- d) Use a flat head type screwdriver to take the snap-in type holder cover off. Remove the blown fuse and replace it with the same type and rating fuse which is:

250V 1.5A
- e) Put the snap-in fuse holder back.

Maintenance

1. Always cover your microscope with the dust cover when not in use.
2. When cleaning the lenses, use lens paper or a Q-tip dipped in lens cleaning solution.
3. Excess immersion oil should be cleaned of at once. An alcohol pad is best for removing oil from the stage and on the other metal parts, but is not recommended for use on the lenses.
4. Dust in the nosepiece or ocular tubes should be blown out using only filtered air. Canned air dusters work well for this job.
5. Whenever you remove an objective, we recommend that you place the plastic cap over the hole and put the objective back into the original plastic shipping vial until ready to be placed back on the microscope. This will keep the objective safe from dust and other foreign matter.
6. To keep your microscope in top condition for years, we recommend that you have the microscope professionally serviced once a year.

Photo & Nomenclature



UNICO® IP730 Series Compound Microscope