



## 1 YEAR LIMITED WARRANTY

### MICROSCOPES

BARSKA warrants your microscope to be free from defects in materials and workmanship for one (1) year. BARSKA will repair or replace such product or part thereof which, upon inspection by BARSKA, is found to be defective in materials or workmanship. As a condition to the obligation of BARSKA to repair or replace such product, the product must be returned to BARSKA together with proof-of-purchase satisfactory to BARSKA.

The proper Return Merchandise Authorization Number (RMA) must be obtained from BARSKA in advance of return. Please e-mail [info@barska.com](mailto:info@barska.com) or call 1.888.666.6769 for Return Merchandise Authorization number (RMA) before any returns. NOTE: All merchandise received without a valid RMA number will be returned to shipper at his/her own expense.

BARSKA products should be sent to the following address for warranty repairs. Products must be packed carefully and sturdily to prevent damage in transit, and returned freight prepaid to:

BARSKA  
855 Towne Center Drive  
Pomona, CA 91767

For additional and updated information  
please visit our website at [www.barska.com](http://www.barska.com)

Please include all of the following when returning BARSKA products for service and/or replacement:

1. Please write your complete details (Name, Address, Telephone#, E-mail address, RMA#, etc.)
  2. Purchase receipt or Proof of Purchase. (Original/Copy)
  3. A brief explanation of the defect.
  4. A Check/Money Order for \$50.00 to cover inspection, shipping and handling.
- \*Please allow 6-8 weeks for delivery.

The customer shall be responsible for all costs of transportation and insurance, both to and from BARSKA, and shall be required to prepay such costs.

BARSKA shall use reasonable efforts to repair or replace any microscope covered by this warranty within 30 days of receipt. In the event repair or replacement shall require more than 30 days, BARSKA shall notify the customer accordingly. BARSKA reserves the right to replace any product which has been discontinued from its product line with a new product of comparable value and function.

This warranty shall be void and of no force of effect in the event a covered product has been modified in design or function, or subjected to abuse, misuse, mishandling or unauthorized repair. Further, product malfunction or deterioration due to normal wear is not covered by this warranty.

BARSKA DISCLAIMS ANY WARRANTIES, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR USE, EXCEPT AS EXPRESSLY SET FORTH HEREIN. THE SOLE OBLIGATION OF BARSKA UNDER THIS LIMITED WARRANTY SHALL BE TO REPAIR OR REPLACE THE COVERED PRODUCT, IN ACCORDANCE WITH THE TERMS SET FORTH HEREIN. BARSKA EXPRESSLY DISCLAIMS ANY LOST PROFITS, GENERAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM BREACH OF ANY WARRANTY, OR ARISING OUT OF THE USE OR INABILITY TO USE ANY BARSKA PRODUCT. ANY WARRANTIES WHICH ARE IMPLIED AND WHICH CANNOT BE DISCLAIMED SHALL BE LIMITED IN DURATION TO A TERM OF ONE YEAR FROM THE DATE OF ORIGINAL RETAIL PURCHASE.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitation on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

BARSKA reserves the right to modify or discontinue, without prior notice to you, any model or style microscope.

If warranty problems arise, or if you need assistance in using your microscope contact:

BARSKA Customer Service Department Tel. 1.888.666.6769 Fax. 909.445.8169 Monday-Friday 8:30AM-5PM PST or e-mail: [service@barska.com](mailto:service@barska.com)

NOTE: This warranty is valid to U.S.A. customers who have purchased this product from an authorized BARSKA dealer in the U.S.A. This warranty is limited to the original purchaser and is not transferable.

BARSKA shall not be liable for any consequential, incidental and/or contingent damages whatsoever and is not responsible for damage to personal property. We will not pay shipping, insurance or transportation charges from you to us, or any import fees, duties and or taxes. This warranty supersedes all previous BARSKA warranties.



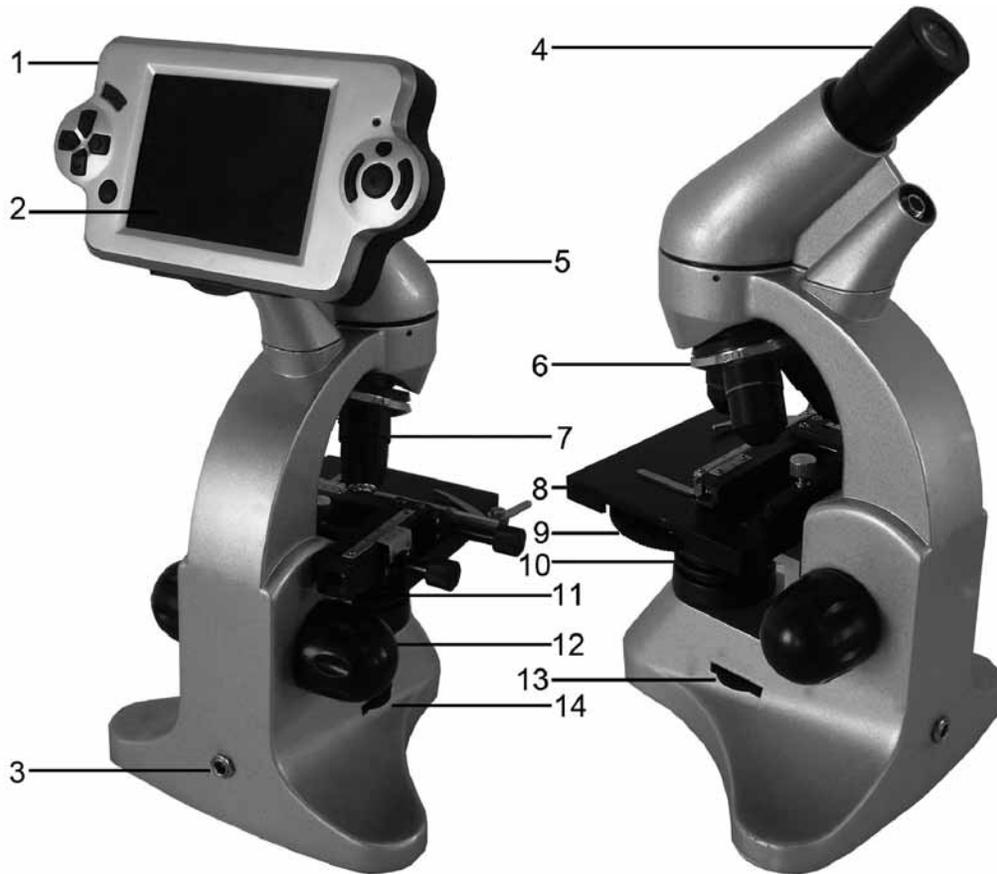
## Digital Microscope Manual



16x, 40x, 160x Magnification with LCD screen  
40x, 100x, 400x Magnification with Eye piece

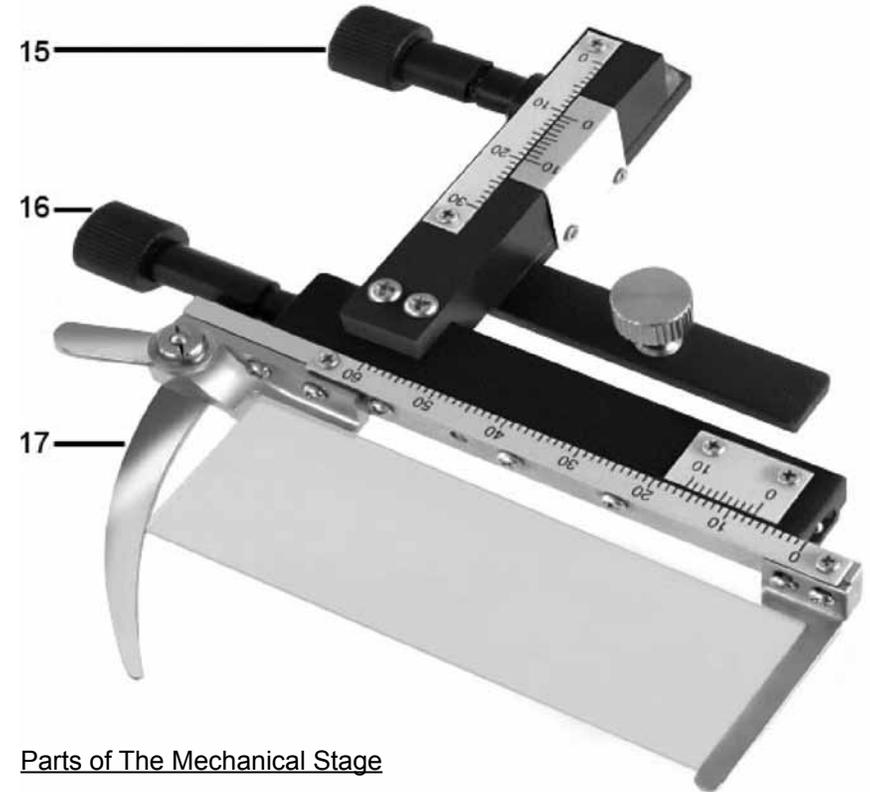
### Accessories Included

- LCD Screen
- Eyepiece
- Slide Cutter
- Hatchery
- 4 Specimen Samples
- 5 Prepared Slides
- 5 Blank Slides
- Tweezers
- Mini USB 2.0 Cable
- Plastic Dust Cover
- Carrying Case



**Parts of The Microscope**

- |                     |   |
|---------------------|---|
| 1. Screen module    | 9. Color filter disc                                  |
| 2. LCD monitor      | 10. LED lighting (transmitted light)                  |
| 3. Power connection | 11. Stage   |
| 4. Eyepiece         | 12. Focusing wheel                                    |
| 5. Tube             | 13. Switch for oblique lighting (top lighting)        |
| 6. Lens turret      | 14. Switch for transmitted lighting (bottom lighting) |
| 7. Objective        |   |
| 8. Microscope table |   |



**Parts of The Mechanical Stage**

- 15. Mechanical stage control, forwards and back
- 16. Mechanical stage control, left and right
- 17. Lever for clamping mounting plate

**Initial Set Up The Microscope**

1. Carefully remove the microscope and parts from the carrying case and set them on a flat surface.
2. Remove the dust cover from the microscope.
3. Decide if you want to view the specimen with the eyepiece or the LCD screen and carefully attach the appropriate viewing device to the tube of the microscope.  
Eyepiece has magnification of 40x, 100x, 400x  
LCD screen has a magnification of 16x, 40x, 160x
4. Plug the small cable from the AC adapter into the socket on the back of the base. Power connection (220 V or 110V) is required for

observations using the electrical LED lighting and the electronic LCD eyepiece (screen module). Insert the plug end of the AC adapter into the proper power source

### **Illumination**

To get the sharpest and best views, the proper illumination or lighting must be chosen.

#### Oblique Lighting

Or top lighting is normally for solid objects (not on a specimen slide) so light shine down onto the object.

#### Transmitted Lighting

Or bottom lighting is used for specimen slides where the light shines up through the hole in the stage through the slide.

Having both oblique and transmitted lights on at the same time can provide enough light for semi-transparent specimens.

The lighting switches are located near the base of the microscope on either side of the microscope. Adjust the level of brightness by turning the switch slide.

### **Using the Microscope with the LCD Screen**

Carefully place the LCD screen into the tube of the microscope.

1. Begin each observation at the lowest magnification. To adjust the positioning of the specimen move the microscope table, using the focusing wheel completely down and then turn the lens turret until it engages on the lowest magnification (the 4x-objective is vertical).
2. Place specimen directly under the objective of the microscope stage and exactly above or below the illumination, if the specimen is on a microscope slide clamp it onto the stage of the microscope. For this, move the lever for the clamping mounting plate to the side, put the slide onto the stage and carefully allow the clamping mounting plate to return onto the prepared slide. If necessary use mechanical stage controls to move the slide forwards and back and/or left and right.
3. Then switch on the LCD monitor, by pressing the power switch on the screen module; the red operating light will light up. Look at the LCD screen and adjust lighting and focusing wheel until the image is sharp. With the stage you can now center the object at the desired place on the LCD monitor.

4. For higher magnification turn the lens turret to a higher setting (objectives 10x and 40x).

*Notes:* Before you change the objective setting, first move the microscope table fully downwards. This will avoid possible damage to the objective lens and to the slide.

The higher the magnification, the more light is needed for a good image quality.

Depending on the preparation in use, higher magnification in individual cases will not lead to a better picture. The magnification is altered by changing the objective. This alters the sharpness of the image which must be adjusted by the focusing wheel. Proceed here very carefully, if you raise the microscope table too quickly, the objective and the slides can touch each other and be damaged

5. The magnification factor of the LCD eyepiece amounts to 10x. In combination with the 4x-objective we obtain a total magnification of 40x, i.e. 1 mm of the object is shown as 40 mm on the LCD monitor. With the 10x objective we have a total magnification of 100x, correspondingly, with the 40x objective 400x.
6. To zoom in digitally, press the “up” or “down” arrow keys located on the right of screen. The digital magnification of the image can be zoom with set with a factor from 1 to 4.

### **Colored Wheel Filter Disc**

The color wheel filter disc is located beneath the microscope table helps you when viewing very bright or transparent specimens. For this please select the suitable color depending upon the object being observed. The components of colorless or transparent objects (e.g. grain containing starch, single-celled organisms) will be much easier to recognize. Filter colors are violet, yellow, light green, green and blue.

### **Icons On the LCD Screen**

If you switch on the LCD monitor, you will see the live image of your object as well as three different displays.

1. Lower right is the remaining internal storage capacity of the screen module available for image files and showing picture's resolution above it. Quality: Fine (★★★) , Standard(★★) and Economy(★)

2. At the top right hand corner, is a camera symbol.  
(photographic mode or video mode)

### **Taking Photos**

To take a photo of the image being viewed press the photo button. A snapshot of the image is taken and saved.

### **Photograph Management**

By pressing “MODE” again you change from video record mode to photo management mode. You can see the photos and videos. By pressing “LEFT” or “RIGHT”, you can select a required picture or video. By pressing “MODE” you can return to live image.

By pressing the “MENU” button while displaying the picture (video), a menu bar appears, which you can control using the appropriate arrow keys.

Here you can also change certain settings and bring them into force by pressing the “OK” input key.

### **Menu Functions**

Delete. By pressing “OK”, you can select Single (delete selected image file), All (delete all image files) or Select (you can delete the one you want to)

Copy to Card

Slide show

Protect (writing and delete protection for image file). By pressing “OK”, you can select Single (protect selected image file), All (protect all image files) or Select (the one you want to protect).

### **Image Capture Settings**

By pressing the “MENU” button while displaying the live image a menu bar appears, which you can control using the appropriate arrow keys. Here you can also change settings and bring them into force by pressing the “OK” input key. Overview of the menu:

Picture Resolution or Size	Number of Pixels Width x Height
4M	2240x1680
3M	2048 x 1536
2M	1600 x 1200
1.3M	1280 x 1024
VGA	640 x 480

Quality: Fine (★★★) , Standard(★★), Economy(★).

EV: you can select EV from -2.0-----+2.0

White Balance. Auto for the default

ISO: Auto for the default.

Color: Standard, Vivid, Sepia, Monochrome.

Saturation: Normal, High, Low

Sharpness: Normal, Normal, Soft.

Time Stamp: OFF, Date only (can show the date on the picture or video) Date &Time (can show the date and time on the picture or video).

### **Camera Settings**

By pressing the “MENU” button while displaying the live image a menu bar appears, which you can control using the appropriate arrow keys. Then by pressing the “RIGHT” button, you can setup the camera setting.

Format: Execute (warning: all the files will be lost), Cancel.

Language: There are 9 languages to choose from. The default is English.

Auto off: 1Min, 3Min, 5Min, off

Sys. Reset: Execute (warning: all the setting will be to the default), Cancel.

Light Freq: 60HZ, 50HZ

TV Output: NTSC, PAL

Date Input: Off, Set

USB: PC Cam, Disk Drive, Printer

### **Recording Video**

By pressing button “MODE” in the photographic mode during live image display, a symbol of a movie camera appears on the top left and on the right beneath the volume of free internal storage capacity for photographs. You take the photograph with the “SNAP” photograph button, by renewed pressing of this button you terminate it. During the photograph the movie camera symbol blinks and the current time of the photograph is indicated. You can set sizes of QVGA (320 x 240) or VGA (640 x 480) in the menu, with the “menu” and the “OK” buttons. Furthermore with “EV” the same picture effects can be selected as with photos.

### **System Requirements**

for USB Connection / Memory Card Use

- Windows operating system (Window XP or Windows Vista)
- USB connection
- Media program  
(e.g. Image processing program, program for playing films)
- Memory card
- Memory card reader

### **Image Output and Storage**

The LCD Screen offers you three possibilities for image output and storage: Directly on the screen, on an SD memory card (NOT included) or through the USB cable.

#### 1. LCD Screen

You can view the image directly on the LCD screen. The screen has an internal storage capacity of 128 MB with an expandable SD slot, up to 4G.

#### 2. SD Memory Card (NOT included)

You can store your photographs on an SD memory card (SD, Secure Digital) (NOT included). The memory card slot of the LCD Screen is located on the bottom of the screen beside the USB connection. To use, push the memory card, with the contacts at the front, into the slot,

until they engage with a faint click. If the installation is correct, a memory card symbol appears above on the LCD monitor. To remove the SD card press and release the memory card, which after a faint click, can be taken out of the slot. Your photographs are now transportable.

#### 3. USB Cable

If you connect your microscope to the PC using the included USB cable, you can transfer the photographs to the PC through the USB cable. The USB connection of the LCD Screen is located on the bottom of the screen module beside the memory card slot. Insert the smaller plug of the USB cable into the socket on the microscope and the larger plug into a free USB port in your computer. After a successful USB connection, the computer’s operating system will recognize new hardware and then two new drive assemblies will be initialized.

These are marked as “removable data carrier e” and “removable data carrier f”, the letters vary depending upon the number of drive assemblies in your computer. They are made available on the work station, as well as in Windows Explorer. The first drive assembly recognized (e:) is the internal memory of the screen module. The second (f:) contains – if a memory card is inserted – the contents of the card.

*Caution:* When taking a photograph, no USB connection between PC and microscope may exist. Before you interrupt the USB connection or switch the screen module off, you must remove or eject the screen module (removable data carrier e:) in the PC with the help of the hardware assistant and “deactivate” the card drive assembly (removable data carrier f:) ! If the drive assemblies are not deactivated, the PC might “crash” or there may be a loss of data.

### **Using the Microscope with the Eyepiece**

1. Remove the LCD eyepiece from the tube and carefully place the eyepiece into the microscope tube.
2. Place specimen directly under the objective of the microscope stage and exactly above or below the illumination if the specimen is on a microscope slide clamp it onto the stage of the microscope. For this, move the lever for the clamping mounting plate to the side, put the slide onto the stage and carefully allow the clamping mounting plate to return onto the prepared slide.
3. After you have set up the microscope with the corresponding illumination, look through the eyepiece.

4. Begin each observation at the lowest magnification. Use the 4x Objective Lens by rotating the Objective Lens Turret so that the 4x Objective Lens is aiming at the center of the Stage (when it is in the proper position it will click into place). The 4x Objective Lens will give a 40x (40 power) view with the 10x Eyepiece. Final Power is calculated by multiplying the Objective Lens Power by the Eyepiece Power (e.g.,  $4 \times 10 = 40$ ).
5. Focus the microscope by slowly turning the Focusing Knob, until an image forms in the Eyepiece.
6. To increase magnification, rotate the Objective Lens Turret to center the 10x Objective Lens over the specimen for 100x, or the 40x Objective Lens for 400x, or change the eyepiece from 10x to 16x. When using higher magnifications focusing becomes more critical and the objective lens will come closer to the specimen in order to reach focus. Don't let the lens touch the slide as you may break the slide and damage the lens.

### **Colored Wheel Filter Disc**

The color wheel filter disc is located beneath the microscope table helps you when viewing very bright or transparent specimens. For this please select the suitable color depending upon the object being observed. The components of colorless or transparent objects (e.g. grain containing starch, single-celled organisms) will be much easier to recognize. Filter colors are violet, yellow, light green, green and blue.

### **Care and maintenance**

The microscope is a precision optical instrument and should be treated with care at all times. Follow these care and maintenance suggestions and your microscope will need very little maintenance throughout its lifetime.

- Turn off the illuminator switch
- Unplug the power cord
- Carefully remove viewing instrument (screen or eyepiece) from the body of the microscope
- Make sure that dust or moisture do not come into contact with your microscope

- Be very careful if using your microscope in direct sun light to prevent damage to the microscope or your eyes
- When moving your microscope, carry it by the "arm" with one hand and not by the focuser knob, monitor, etc. Then, place put your other hand under the base for support
- Always unplug any cords before cleaning and clean the outside surfaces (metal and plastics) with a moist cloth
- Remove dust with a camel's hair brush or an air blower from optical surfaces
- Never clean optical surfaces with cloth or paper towels as they can scratch optical surfaces easily
- To clean fingerprints off of optical surfaces, use a lens cleaning agent and lens tissue available at most retail photo stores and when cleaning do not rub in circles as this may cause streaks or scratches to occur
- Never disassemble or clean internal optical surfaces. This should be done by qualified technicians at the factory or other authorized repair facilities
- When handling glass specimen slides, use care as the edges may be sharp
- Remove any specimens left on the stage
- After usage, place the dust cover over the microscope and stow the microscope and accessories in their correct place in the carrying case
- Store the microscope in a dry, cool clean place