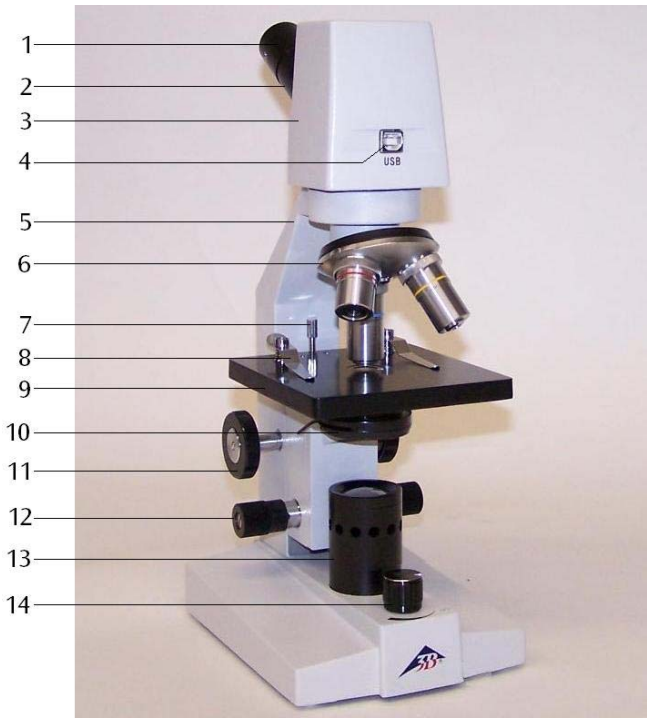
3B SCIENTIFIC® PHYSICS

Digital Course Microscope Model 100, LED with built-in Camera
115 V, 50/60 Hz: 1005403 / 230 V, 50/60 Hz: 1005404

Instruction Manual

07/13 ALF



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1. Description, technical data

The digital course microscope with built-in camera allows two-dimensional viewing of objects (thin sections of plant or animal specimen) in 40x to 400x magnification. It also allows photographic or video-recording documentation of images.

The microscope 1005403 is for operation with a mains voltage of 115 V (±10%), and the 1005404 unit is for operation with 230 V (±10%).

As well as real-time video playback, single images, sequences and video recording, the Photolib software provides a wide range of functions for the presentation, processing and evaluation of images.

The installation CD contains a detailed description of the software in English, and additional advice and assistance is available in the help files of the software.

Stand: All-metal stand, arm firmly connected with base, pinion knobs attached on both sides of the stand for coarse and fine focusing

Tube: Monocular inclined 45°, head rotation 360°

Eyepiece: Widefield eyepiece WF 10x 18 mm with pointer

Objectives: Revolver with 3 DIN achromatic objectives 4x / 0.10, 10x / 0.25, 40x / 0.65 (with specimen protection)

Magnification: 40x, 100x, 400x

Object stage: 110 x 120 mm^2 with 2 specimen clips

Illumination: Adjustable LED lighting incorporated into the base with a focussing lens in the lighting shaft, power supplied by rechargeable battery, 115 V or 230 V, 50/60 Hz charger

Condenser: Bright-field condenser N.A. 0.65, iris diaphragm, filter holder and blue filter

Camera sensor: 1/3" CMOS, 1.3 Mpixel, colour prints

Power supply: via USB 2.0

System requirements: WIN2000, WINXP, Vista, WIN7 and WIN8

Dimensions: 175 x 135 x 335 mm³ approx.

Weight: 3.1 kg approx.

2. Unpacking and assembly

The microscope is packed in a molded styrofoam container.

- Take the container out of the carton remove the tape and carefully lift the top half off the container. Be careful not to let the optical items (objectives and eyepieces) drop down.
- To avoid condensation on the optical components, leave the microscope in the original packing to allow it to adjust to room temperature.
- Using both hands (one around the pillar and one around the base), lift the microscope from the container and put it on a stable desk.
- The objectives will be found within individual protective vials. Install the objectives into the microscope nosepiece from the lowest magnification to the highest, in a clockwise direction from the rear.
- Insert the eyepiece into the tube.

3. Operation

3.1 General information

- Set the microscope on a level table.
- Place the object to be observed in the center of the object plate. Use the clips to fasten it into place. Make certain that the specimen is centered over the opening in the stage.
- Connect the mains adaptor, and switch on the illumination.

Alternatively, the microscope can also be operated without being connected to the mains.

- Make certain that the specimen is centered over the opening in the stage.
- To obtain a high contrast, adjust the background illumination by means of the iris diaphragm and the variable illumination control.
- Rotate the nosepiece until the objective with the lowest magnification is pointed at the specimen. There is a definite "click" when each objective is lined up properly.

NOTE: It is best to begin with the lowest power objective. This is important to reveal general structural details with the largest field of view first. Than you may increase the magnification as needed to reveal small details.

To determine the magnification at which you are viewing a specimen, multiply the power of the eyepiece by the power of the objective.

- Adjust the coarse-focusing-knob which moves the stage up until the specimen is focused. Be careful that the objective does not make contact with the slide at any time. This may cause damage to the objective and/or crack your slide.
- Adjust the fine-focusing-knob to get the image more sharp and more clear.
- Colour filters may be inserted into the filter holder for definition of specimen parts. Swing the filter holder out and insert colour filters.
- Always turn off the light immediately after use.
- Be careful not to spill any liquids on the microscope.
- Do not mishandle or impose unnecessary force on the microscope.
- Do not wipe the optics with your hands.
- Do not attempt to service the microscope yourself.

3.2 Installation of the software

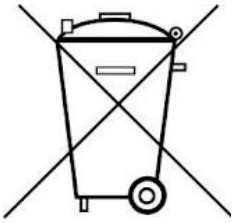
- Insert the installation CD into the computer's CD drive.
- Follow the installation instructions (see also the description of the software on the installation CD).

3.3 Displaying images on the computer

- Connect the microscope to the computer using the USB cable.
- Start up the software.
- After clicking on the camera icon in the toolbar, the image of the specimen will appear on the computer screen.
- If necessary, re-adjust the brightness and contrast using the iris diaphragm and the variable illumination control.
- Adjust the sharpness of the image by means of the focusing knobs of the microscope.
- If necessary, adjust the settings of the camera in the video window according to the particular requirements.
- For further work using the software, see the instructions for the software that are on the installation CD and the help files in the software.

4. Storage, cleaning and disposal

- Keep the microscope in a clean, dry and dust free place.
- When not in use always cover the microscope with the dust cover.
- Do not expose it to temperatures below 0°C and above 40°C and a max. relative humidity of over 85%.
- Always unplug the mains plug before cleaning or maintenance.
- Do not clean the unit with volatile solvents or abrasive cleaners.
- Do not disassemble objective or eyepieces to attempt to clean them.
- Use a soft linen cloth and some ethanol to clean the microscope.
- Use a soft lens tissue to clean the optics.
- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.



- Do not dispose of the battery in the regular household garbage. Follow the local regulations (In Germany: BattG; EU: 2006/66/EG).