



## levenhuk D85L LCD Digital Microscope User Manual

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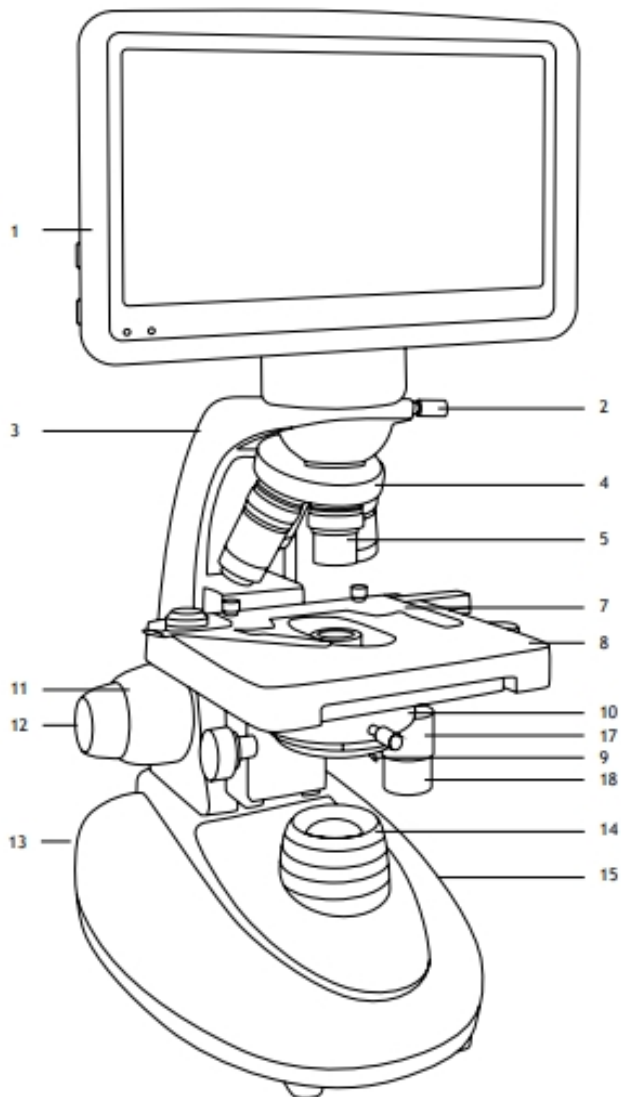
levenhuk D85L LCD Digital Microscope User Manual



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## Product Overview

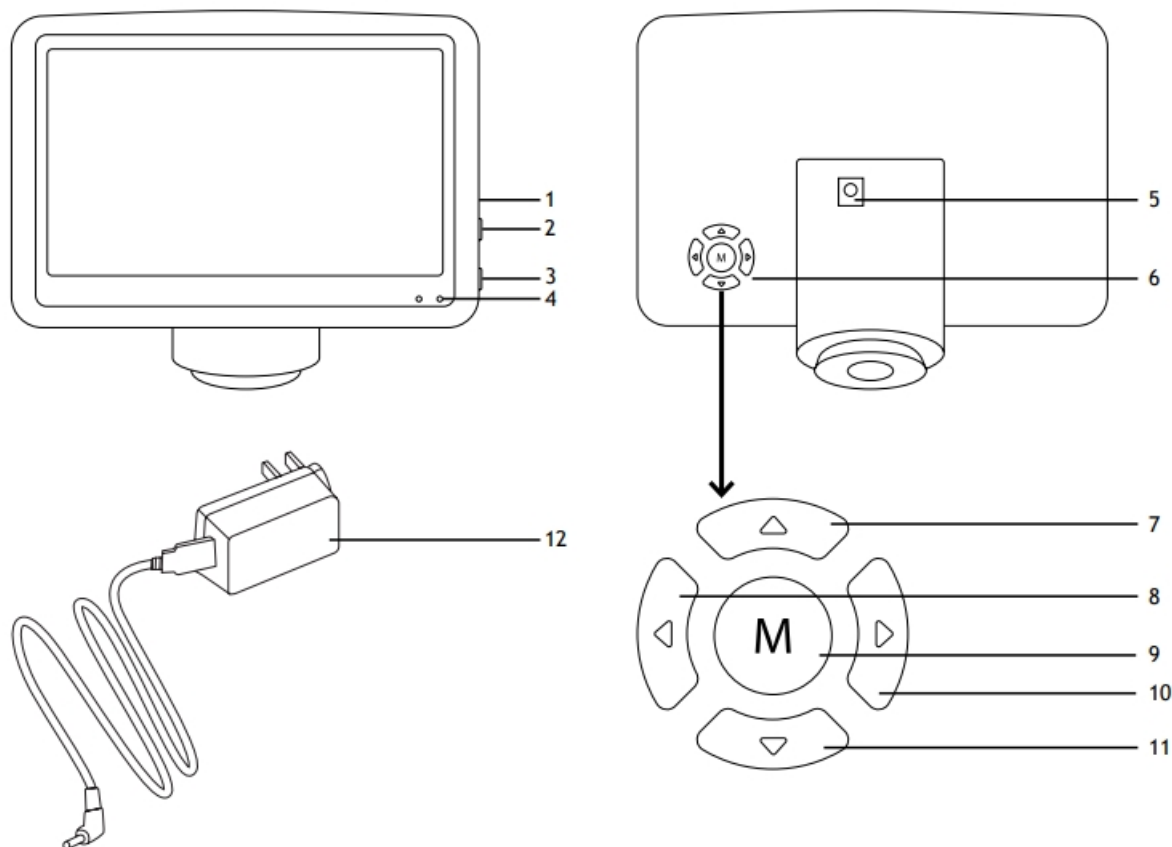


- 1. LCD screen
- 2. LCD screen locking screw

3. Arm
4. Revolving nosepiece
5. Objective
6. Specimen holders (D85L LCD only)
7. Mechanical scale (D95L LCD only)
8. Stage
9. Aperture diaphragm adjustment rod (D95L LCD only)
10. Condenser
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13. Illumination on/off button (not shown)
14. Collector
15. Brightness adjustment knob (not shown)
16. Upper illumination (D85L LCD only)
17. Stage moving knob (right/left) (D95L LCD only)
18. Stage moving knob (back/forth) (D95L LCD only)
19. Diaphragm disk (D85L LCD only)

## **Button Overview**

1. SD slot
2. Snap button
3. Power on/off
4. LED
5. Power input
6. Menu buttons
7. FOV/Up
8. Enter/Increase
9. Menu/Quit
10. Decrease
11. FOV/Down
12. Power cable



## General Information

Read the user manual carefully before you start working with a microscope. Levenhuk D85L LCD and D95L LCD biological microscopes are safe for health, life and property of the consumer and the environment when properly used, and meets the requirements of international standards. These microscopes are designed for observing transparent objects in the transmitted light using the bright field method. The Levenhuk D85L LCD model is also suitable for conducting research in reflected light using the bright field method.

They perform well in clinical research and tests; teaching demonstrations; bacterioscopy and cytology in medical and health establishments, laboratories, universities; and may be used for scientific research in agriculture and microbiology.

## Microscope assembly

- Unpack the microscope carefully and place it on a flat surface.
- Remove the plastic bags and dustproof cover of the eyepiece head.
- Install the LCD screen and tighten the locking screw.
- Inspect all the items included in the kit and define their purpose.
- D95L LCD: Connect the power cord to the microscope and plug it in.
- D85L LCD: Open the battery compartment, position the batteries according to the polarity marking on the battery compartment, reinsert the battery compartment door and turn on the microscope. Connect the microscope to the mains using the power adapter.

## Use

Please refer to the fig. 1a (Levenhuk D85L LCD) and fig. 1b (Levenhuk D95L LCD).

- Turn on the power and the illumination will turn on. Set the brightness at approximately 70%. Place the specimen on the stage. Make sure the clips hold the specimen firmly in place.
- D85L LCD: Adjust the height of the stage by rotating the locking screw.
- D95L LCD: Iris diaphragm should be adjusted in accordance with numerical aperture of a lens. The best practice is to make the iris diaphragm slightly smaller than the aperture of the selected lens. Open or close the iris diaphragm using the adjustment screws. If the adjustment screw is turned to the right, the iris diaphragm is fully open. Note: the diaphragm is not intended for adjusting the brightness of the illumination. To adjust the brightness, use the brightness adjustment knob.
- D95L LCD: Slide the filter holder, place the filter in it and then return the holder to its initial position.
- D85L LCD: Rotate the diaphragm disk until the passing light ray is reduced to a comfortable brightness level. If the image is too dark, select a larger aperture to increase the light ray.
- To change the objective magnification, turn the revolving nosepiece until it clicks.
- Make sure that the lens does not touch the sample when adjusting the focus: rotate the coarse focus knob until the specimen is about 3.175mm (1/8") away from the lens.
- Turn the fine focusing knob to make the image clear. The fine focusing mechanism allows you to focus on the observed specimen while using high magnifications.
- D95L LCD: When you use an oil immersion objective, the space between the specimen and the lens should be filled with immersion oil. Raise the condenser to the upper position and put a drop of oil on the lens and on the cover glass of the specimen. Move the revolving nosepiece back and forth to get rid of air bubbles in the oil. Then, fix the objective lens in its working position. Make sure that oil fills the entire space between the objective lens and the specimen. After use, wipe the lens dry.
- To adjust the position of the mechanical scale (D95L LCD only), turn the coarse focusing knob in a clockwise direction if you want to fix the position of the mechanical scale, or in a counterclockwise direction if you want to loosen it.
- D95L LCD: To place the specimen in the field of view, move the stage horizontally back and forth or left and right using the stage moving knob.
- While looking at the monitor, use the focusing knobs to adjust the sharpness of the image

## **LCD screen**

### **Getting started**

- Connect the power cable to the power input on the LCD screen and connect it to the network. The red LED will light up. Turn the LCD screen on with the power on/off button; the LED light will change to green.
- Insert the SD card (included) in the SD slot to view the image and save the resulting photos and videos.

### **Menu and functions**

- Use the buttons on the back of the LCD screen to control the camera functions and parameters. After modifying the parameters, exit the interface to save data.
- Press the Menu button to call up the menu. Use  $\uparrow\downarrow$  to select the functions. Use  $\rightarrow$  to enter the submenu. Press the Menu button once again to save the modified parameters and exit the interface.

### **Photo and video**

- **Photo.** Press the Snap button on the LCD panel to take a photo. The image will be saved on the SD card.
- **Video.** Before recording a video, make sure that the SD card is formatted with the FAT32 file system and has enough free space. You cannot take photos while recording a video. Enter the menu and select “Record Video” to record a video.

## Basic settings

- **White Balance.** In this parameter, you can adjust the color temperature. The default option is “Auto White Balance”.
- **Exposure.** In “Auto Exposure”, you can set the exposure value. In “Manual Exposure”, you can adjust the “time” parameter.
- **Color Adjustment.** In this parameter, you can adjust saturation, hue, brightness, and contrast.
- **Monochrome.** By selecting this parameter, you will see the image in different tones of a single color (e.g. shades of gray).
- **Flip.** This feature allows you to flip the image horizontally or vertically.

## Measurements

1. **Cross Line.** You can select a cross line in four colors, turn the display on or off, and adjust the position of the center point of the cross line.
2. **Calibration.** The camera is calibrated by default, but you may need to recalibrate the camera.
  - Put the calibration slide on the stage so that the scale is placed horizontally on the screen. Adjust the focus as clearly as possible.
  - Enter the Calibration menu. Drag a segment of the calibration ruler so that its ends are next to the marks on the physical scale of the calibration slide. For maximum accuracy, try to capture as many scales as possible.



- Example: The image above uses a ruler with 0.01mm (10 $\mu$ m) divisions under a 10x lens. The camera parameters are set to: “magnification 10x”, “units  $\mu$ m”, and “length 40”.
  - Each objective lens must be calibrated to take measurements at different magnifications.
  - After adjusting the parameters, exit the calibration menu to complete the procedure.
3. **Recalibration.** The calibration process has to be repeated if the magnification or focus has been changed during observations. Enter the Measurement menu. Select the magnification, adjust the start and end point, and then the value of the measured segment will be displayed.

## Fuse replacement (Levenhuk D95L LCD)

Unplug the microscope from a power source. Open the fuse holder located on the back of the microscope body with a flat head screwdriver. Remove the old fuse and install a new one. Only use the appropriate types of fuses. Close the fuse holder.

## Specifications

<b>Product ID</b>	<b>78902</b>	<b>78903</b>
<b>Model</b>	<b>Levenhuk D85L LCD</b>	<b>Levenhuk D95L LCD</b>
Type	biological/optical, digital	
Research method	bright field	
Magnification	60x, 150x, 600x	60x, 150x, 600x,1500x
Eyepiece head	7" color LCD screen	
Optics material	optical glass	
Objectives	achromatic: 4x, 10x, 40x	achromatic: 4x, 10x, 40xs, 100xs (oil)
Revolving nosepiece	3 objectives	4 objectives
Stage moving range	—	70/30mm
Stage	90x90mm, with specimen holders	double layer mechanical, 110x126 mm, with mechanical scale
Focus system	coaxial, coarse (15mm) and fine (0.002mm)	
Condenser	N.A. 0.65 with diaphragm disk (6 apertures)	Abbe N.A. 1.25 iris diaphragm and filter holder
Body	metal	
Illumination	upper and lower (0.2W LED) with brightness adjustment	lower (1W LED) with brightness adjustment

Collector	+	+
Filters	—	blue
Vial of immersion oil	—	+
Fuse	—	+
Power supply	3pcs AA batteries or 110—220V, via AC adapter	110—220V, via AC adapter
Digital camera	2Mpx	
Camera power supply	5V, 1A via AC adapter	

#### LCD screen specifications



Megapixels	2
Max. resolution (still images)	1920x1080px
Sensor	1/2.8
Mounting location	microscope's arm
Pixel size	2.9×2.9µm
Sensitivity	2.0V/lux.sec@706nm
Spectral range	380—700nm
Image format	*.jpg
Video format	*.mp4
White balance	auto/manual
Exposure control	auto/manual
Software	embedded
Connection to a computer/external screen	no
Power supply	5V, 1A via AC adapter

Levenhuk reserves the right to modify or discontinue any product without prior notice.

**Caution!** Please refer to the specifications table for the correct mains voltage and never attempt to plug a 110V device into 220V outlet and vice versa without using a converter. Remember that mains voltage in the U.S. and Canada is 110V and 220—240V in most European countries.

## Care and maintenance

- Never, under any circumstances, look directly at the Sun, another bright source of light or at a laser through this device, as this may cause PERMANENT RETINAL DAMAGE and may lead to BLINDNESS.
- Take necessary precautions when using the device with children or others who have not read or who do not fully understand these instructions.
- After unpacking your microscope and before using it for the first time check for integrity and durability of every

component and connection.

- Do not try to disassemble the device on your own for any reason. For repairs and cleaning of any kind, please contact your local specialized service center.
- Protect the device from sudden impact and excessive mechanical force. Do not apply excessive pressure when adjusting focus. Do not overtighten the locking screws.
- Do not touch the optical surfaces with your fingers. To clean the device exterior, use only special cleaning wipes and special optics cleaning tools from Levenhuk. Do not use any corrosive or acetone-based fluids to clean the optics.
- Abrasive particles, such as sand, should not be wiped off lenses, but instead blown off or brushed away with a soft brush.
- Do not use the device for lengthy periods of time, or leave it unattended in direct sunlight. Keep the device away from water and high humidity.
- Be careful during your observations, always replace the dust cover after you are finished with observations to protect the device from dust and stains.
- If you are not using your microscope for extended periods of time, store the objective lenses and eyepieces separately from the microscope.
- Store the device in a dry, cool place away from hazardous acids and other chemicals, away from heaters, open fire and other sources of high temperatures.
- When using the microscope, try not to use it near flammable materials or substances (benzene, paper, cardboard, plastic, etc.), as the base may heat up during use, and might become a fire hazard.
- Always unplug the microscope from a power source before opening the base or changing the illumination lamp. Regardless of the lamp type (halogen or incandescent), give it some time to cool down before trying to change it, and always change it to a lamp of the same type.
- Always use the power supply with the proper voltage, i.e. indicated in the specifications of your new microscope. Plugging the instrument into a different power outlet may damage the electric circuitry of the microscope, burn out the lamp, or even cause a short circuit.
- Seek medical advice immediately if a small part or a battery is swallowed.

## **Battery safety instructions**

- Always purchase the correct size and grade of battery most suitable for the intended use.
- Always replace the whole set of batteries at one time; taking care not to mix old and new ones, or batteries of different types.
- Clean the battery contacts and also those of the device prior to battery installation.
- Make sure the batteries are installed correctly with regard to polarity (+ and —).
- Remove batteries from equipment that is not to be used for an extended period of time.
- Remove used batteries promptly.
- Never short-circuit batteries as this may lead to high temperatures, leakage, or explosion.
- Never heat batteries in order to revive them.
- Do not disassemble batteries.
- Remember to switch off devices after use.
- Keep batteries out of the reach of children, to avoid risk of ingestion, suffocation, or poisoning.
- Utilize used batteries as prescribed by your country laws.

## Levenhuk International Lifetime Warranty

All Levenhuk telescopes, microscopes, binoculars and other optical products, except for accessories, carry a lifetime warranty against defects in materials and workmanship. Lifetime warranty is a guarantee on the lifetime of the product on the market.

All Levenhuk accessories are warranted to be free of defects in materials and workmanship for six months from date of retail purchase. The warranty entitles you to free repair or replacement of the Levenhuk product in any country where a Levenhuk office is located if all warranty conditions are met.

For further details please visit our web site: [www.levenhuk.com/warranty](http://www.levenhuk.com/warranty)

If warranty problems arise, or if you need assistance in using your product, contact the local Levenhuk branch.

## Customer Support

Levenhuk Inc. (USA): 928 E 124th Ave. Ste D, Tampa, FL 33612, USA, +1 813 468-3001,

[contact\\_us@levenhuk.com](mailto:contact_us@levenhuk.com)

Levenhuk Optics s.r.o. (Europe): V Chotejně 700/7, 102 00 Prague 102, Czech Republic, +420 737-004-919,

[sales-info@levenhuk.cz](mailto:sales-info@levenhuk.cz)



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[www.levenhuk.com](http://www.levenhuk.com)

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## Documents / Resources

	<p><a href="#">Levenhuk D85L LCD Digital Microscope</a> [pdf] User Manual D85L LCD, D95L LCD, Digital Microscope, Microscope, D85L LCD</p>
	<p><a href="#">Levenhuk D85L LCD Digital Microscope</a> [pdf] User Manual D85L LCD Digital Microscope, D85L, LCD Digital Microscope, Digital Microscope, Microscope</p>

## References

- [Oficiální webové stránky Levenhuk pro Českou republiku](#)
- [Доживотна гаранция на Levenhuk – Официален уебсайт на Levenhuk в България](#)
- [Levenhuk optical instruments store | Levenhuk - best optical equipment](#)
- [Levenhuk lifetime warranty details | Levenhuk - best optical equipment](#)
- [Doživotní záruka společnosti Levenhuk – Oficiální webové stránky Levenhuk pro Českou republiku](#)
- [Levenhuk Lebenslange Garantie – Die offizielle Website von Levenhuk in Deutschland](#)
- [Garantía internacional de por vida Levenhuk – Compre desde el sitio web oficial de Levenhuk en](#)

## España

-  [Levenhuk Lifetime Warranty – Levenhuk's official website in USA](#)
-  [A Levenhuk élettartamra szóló szavatossága – A Levenhuk hivatalos magyarországi weboldala](#)
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-  [Поддержка - Гарантийное обслуживание Левенгук - Levenhuk Russia](#)

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