

Microscope and set of prepared microscope slides

LABOTRIX MICRO M1

PRODUCT PASSPORT

Kyiv

2026

1. Basic product information

- 1.1. Product name — Microscope and set of micropreparations.
- 1.2. Trademark — Labotrix.
- 1.3. Model — Micro M1; full trade name — LABOTRIX MICRO M1.
- 1.4. Manufacturer — Labotrix Group Limited, China.
- 1.5. Intended use: The optical microscope is intended for school biology classrooms and laboratories of higher educational institutions. The equipment is used to study the microscopic structure of living organisms, cells, tissues and other small objects. The kit includes ready-made micropreparations for studying the anatomy of the stem, root, leaf and other biological materials. The presence of an electronic eyepiece allows the teacher to display the image of the preparation on the computer screen while explaining the material to the whole class, and the student to independently process the micropreparations at his own workplace, so the kit is suitable for both demonstration and individual laboratory work.
- 1.6. Design features: The optical system consists of objectives and an eyepiece with multilayer illumination to obtain a clear magnified image. The microscope is equipped with a tripod for stable positioning, macro and micrometric screws for adjusting the focus. Illumination is provided by a built-in LED source with adjustable brightness and an Abe reflector for optimal illumination of the specimen. In addition to the classic optical eyepiece, the microscope is equipped with an electronic eyepiece - a built-in digital camera that transmits the image of the specimen to a computer via a USB cable; the kit includes software compatible with the PC operating system for viewing, photographing and exporting images. The total magnification of the microscope, taking into account the optical and digital channels through the electronic eyepiece, is 40×–1280×.
- 1.7. Digital learning support: The product includes access to an online teaching support course hosted in a learning management system (LMS) and designed for 70 academic hours of classes. The course is designed to meet the current curricula of secondary education institutions in Ukraine. The materials are grouped into research modules in the disciplines of physics, biology, chemistry, STEM, and each topic contains a lesson plan, a list of necessary supplies, an experiment scenario, step-by-step instructions for laboratory work with an explanation of the expected result, a video demonstration of work methods, interactive exercises and tasks for independent study, suitable for both individual and group work. All modules are designed for this equipment and tested on it, so the course works in a direct chain of "equipment → methodology → learning results". The course has a built-in assistant based on a language model with a search through the course knowledge base (Retrieval-Augmented Generation): based on the topic of the lesson, it selects relevant experiments, methodically describes the sequence of conducting the research, analyzes typical student errors and gives personal advice on how to get

rid of them, changes the level of complexity to prepare for a specific class, and helps to write a research report and organize the conclusions. The assistant's knowledge base is localized and aligned with the Ukrainian curriculum. The license for the course and accompanying software is valid for 12 months from the date of transfer of access; the content, interface, and answers of the assistant are provided exclusively in Ukrainian.

2. Technical specifications

- Brand — Labotrix
- Model — Micro M1
- The article number is LTX-MICRO-M1
- Type — optical biological microscope
- Observation configuration — monocular (one eyepiece tube)
- Objective magnification (multiplicity) — 4×, 10×, 40× (three objectives with a revolving nosepiece)
- Eyepiece entrance pupil diameter (millimeter) — 18 mm
- Numerical aperture of the main lens (10×) — 0.25
- Electronic eyepiece - digital camera with image transfer to PC via USB, software compatible with PC OS, with image viewing, photographing and exporting functions
- Total magnification (optical with digital via electronic eyepiece), magnification — 40×–1280×
- Depth of field at 40× magnification (micrometer) — about 0.5
- Working distance (mm) — up to 5 at maximum magnification
- Maximum thickness of the specimen under the objective (millimeter) — 3
- Macrometric screw (movability) - 10 mm per turn
- Micrometer screw (movement) - 0.1 mm per revolution
- Lighting source — 1 W LED lamp
- Supply voltage (volts) - 220 (with 3-6 volt adapter)
- Brightness adjustment - smooth from 0 to 100%
- Housing material - powder-coated cast iron
- The stage is stationary, with a hole for light to pass through and clamps for fixing the slide.
- Dimensions of the microscope when assembled (centimeter) - 15 × 12 × 30
- Microscope weight (kilograms) — 2.5
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Digital learning support — online course in a learning management system (LMS)
- Course volume (academic hour) — 70
- Course subjects — physics, biology, chemistry, STEM

- Composition of the materials — research modules, experiment scenarios, step-by-step laboratory work instructions, video demonstrations, interactive exercises and tasks
- Compatibility of the materials with the equipment — full, along the chain "equipment → methodology → learning outcomes"
- Language-model-based assistant — built into the course, with retrieval over a localized knowledge base (Retrieval-Augmented Generation)
- Validity period of the license for the course and the software (month) — 12
- Language of the course, of the interface and of the answers of the assistant — Ukrainian
- Service life (year) — 5
- Warranty period (month) — 12
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Packaging — individual box of corrugated cardboard with the contents secured
- Microscope surface care - can be wiped with a dry or slightly damp cloth
- Organization of work - suitable for both teacher demonstration to the class through an electronic eyepiece and for individual student work
- Micropreparations format - ready-made permanent preparations that do not require additional preparation before class

3. Equipment

- Monocular biological microscope with electronic eyepiece (digital camera), magnification 40×–1280× — 1 pc.
- Objectives with a revolving nosepiece (4×, 10×, 40×) — 3 pcs.
- Optical eyepiece (10×) — 1 pc.
- LED lamp with dimmer — 1 pc.
- Power adapter (220 V → 3–6 V) — 1 pc.
- USB cable and software for electronic eyepiece compatible with PC OS — 1 set.
- Set of slides "Cytology. Histology. Genetics" - 21 copies
- Slide set "Bacteria. Protists. Plants. Fungi" — 25 preparations
- Set of slides "Zoology" - 14 copies
- General Biology Slide Set — 25 slides
- Microscopy preparation kit — 1 set:
- Slides (unground) — 10 pcs.
- Coverslips — 20 pcs.
- Dissection set (dissection needles, scalpel, tweezers) — 1 pc.
- Microfiber wipes — 2 pcs.
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging — 1 pcs
- Methodological guide for laboratory work — 1 pc.
- Right of access to the online course with a language-model-based assistant (license) — 1 pcs

The kit does not include stains, reagents for preparation of preparations and a bulb for germination. The microscope requires connecting the USB cable to a computer and connecting the power adapter to the mains before first use.

4. Safety measures

4.1. General requirements

- Before first use, read this passport and the methodical guide.
- The microscope is designed for use under the guidance of a teacher and for students under adult supervision.
- Carry the microscope with two hands, one holding the tripod and the other supporting the base.
- Do not leave a working microscope unattended.
- Before moving the microscope, turn off the light and let it cool down.

4.2. Optical security

- Do not look directly at the light source before applying the preparation under the lens.
- When adjusting the focus, try to insert the lens into the specimen slowly, observing from the side.
- Do not change the objective until the macrometric screw is fully raised to avoid the objective colliding with the slide.
- When observing for a long time, take breaks of 10–15 minutes to rest your eyes.

4.3. Electrical safety

- Make sure the adapter voltage matches your local power supply (220V).
- Do not immerse the adapter or power cord in water.
- Do not touch the backlight lamp with wet hands.
- If you find any damage to the cable, stop working and contact a service center.

4.4. It is strictly forbidden

- Disassembling lenses and eyepieces without intentional reasons or skills.
- Touching the optical surfaces of the lenses with your fingers leaves greasy stains.
- Leave wet slides on the slide stage under the objective.
- Use the microscope as a projector with internal lighting in a dark room without ventilation for more than an hour.
- Do not allow the microscope body to be dropped or hit.

5. Preparation for work

- 5.1. Unpack the microscope and check the completeness according to section 3. We recommend that you keep the packaging.
- 5.2. Place the microscope on a flat, stable surface at least 50 mm from the edge of the table.

- 5.3. Connect the adapter to the power supply and insert the power cable into the socket on the back of the microscope.
- 5.4. When turning on for the first time, set the brightness control to the middle position.
- 5.5. Rotate the nosepiece so that the 4× objective is directly under the eyepiece.
- 5.6. Defocus the microscope with the macrometric screw to the maximum height of the objective above the stage.
- 5.7. Examine prepared micropreparations to inspect the optical system and adjust the lighting.

6. Procedure

6.1. Preparation installation

- Place the slide with the preparation on the stage so that the object is in the center of the hole.
- Make sure the cover glass does not obstruct the objective.
- If necessary, use clamps to secure the glass.

6.2. Focus adjustment

- Start with the lowest magnification (4×).
- Thanks to the macrometric screw, slowly lower the lens until you see the image.
- Adjust the brightness using the slider so that the image is clear but not blinding.
- Switch to the 10× lens if more detail is needed.
- When switching to 40×, use only the micrometer screw for precise focusing.

6.3. Changing lenses

- Rotate the turret until it clicks into place to lock the lens into position.
- Always raise the macrometric screw before changing the lens.

6.4. Working with the electronic eyepiece

- Connect the electronic eyepiece's USB cable to the computer and install the microscope software compatible with the PC's operating system, if not already done.
- Select the appropriate video source in the program to see the image of the drug on the computer screen in real time.
- If necessary, apply digital zoom via software to achieve a total magnification of up to 1280×.
- Take a photo of the preparation using the capture button in the program and save or export the files to your computer for reporting or further analysis.
- After completing the observation, close the software and disconnect the USB cable.

6.5. Completion of work

- Raise the lens to its maximum height using the macrometric screw.
- Set the brightness control to minimum.

- Turn off the lights and unplug the adapter from the power outlet.
- Let the microscope cool for 10–15 minutes.

6.6. Working with an online course

- Obtain an account at the educational institution and activate the right of access to the course; the validity period of the license is counted from the date on which access is transferred.
- Select the topic of the lesson in the course list: every topic is accompanied by a plan, a list of equipment, an experiment scenario, a step-by-step instruction, a video demonstration and interactive tasks.
- Formulate a query to the assistant on the topic of the lesson — it will suggest appropriate experiments, set out the sequence of actions, examine typical errors and advise how to correct them.
- Set the level of difficulty of the tasks to match the preparation of the class; on the basis of the results of the work the assistant will help to draw up the report and to organize the conclusions.

7. Care, maintenance and possible malfunctions

7.1. Cleaning

- Wipe the microscope body with a soft, dry cloth.
- Clean the optical surfaces of the lenses using microfiber cloths and a special lens cleaning fluid (without alcohol).
- Make sure that dust does not get on the lenses from the side of the drug.
- Clean the stage with a dry cloth after each use.
- Do not use abrasive materials or solvents to clean plastic.

7.2. Periodic control

- Check the brightness of the lighting and the clarity of the image at least once a month.
- Make sure that the macro and micrometer screws move smoothly without sticking.
- Check the condition of the lenses for obvious damage or scratches.
- If you find any problems with the optics, contact an authorized service center for correction.

7.3. Possible malfunctions and ways to eliminate them

Symptom	Possible cause	User actions
The light does not turn on.	Power cable not connected; adapter defective	Check the power cable connection; replace the adapter

Symptom	Possible cause	User actions
Image is blurry at all magnifications	The objective or eyepiece is dirty; the microscope does not focus correctly.	Clean the lenses with a microfiber cloth; replace the medication below the lens
The edges of the image are dark	The aperture is closed too tightly.	Open the diaphragm with the regulator at the base of the microscope.
The lens scratches the specimen.	Macrometric screw not tightened; incorrect positioning of the specimen	Check that the specimen is placed correctly; raise the objective before replacing the slide.
The turret does not rotate	The lens is hitting an obstacle.	Slowly rotate the device to find the correct position without getting stuck
The image is blurry and blurry.	Coverslip has condensation; specimen prepared incorrectly	Wipe the product with a dry cloth; prepare the product again if necessary.

8. Storage and transportation conditions

- Store the microscope in an upright position in a dry room at a temperature not lower than +5 and not higher than +40 °C and humidity up to 80%.
- Cover the microscope with a protective cover or dust box.
- Keep the microscope away from direct sunlight, heat sources, and vibrations.
- Before long-term storage, lower the objective to the lowest position and set the magnification to minimum to reduce the strain on the optical system.
- When transporting, pack the microscope in its original packaging with cushioning material.
- Do not transport the microscope horizontally or upside down.
- The storage period without maintenance is not limited, provided that the above requirements are met.

9. Warranty obligations

- 9.1. The warranty period of the product is 12 months from the date of sale specified in the warranty card.
- 9.2. The manufacturer guarantees that the product complies with the declared technical characteristics, provided that the rules for transportation, storage and operation set out in this passport are followed.

- 9.3. During the warranty period, product defects that have arisen due to the manufacturer's fault will be eliminated free of charge. The method of elimination (repair, component replacement or product replacement) is determined by the service center.
- 9.4. Warranty service is provided upon receipt of a correctly and completely filled out warranty card and a document confirming the fact and date of purchase.
- 9.5. The warranty does not apply to cases where the malfunction is caused by:
- mechanical damage, in particular cracks, chips and deformation of the housing and of the components of the product;
 - violation of the operating, storage or transportation rules set out in this passport;
 - ingress of liquid or foreign objects into the product, and also the action of insects and animals;
 - independent disassembly, repair or modification of the product, in particular repair at unauthorized workshops;
 - use of the product other than for its intended purpose;
 - force majeure circumstances (fire, flood, earthquake, etc.).
- 9.6. The warranty does not apply to natural wear and tear of the coating and appearance of the product, as well as to consumables.

10. Product disposal

- The product must not be disposed of together with unsorted municipal waste. This is indicated by the marking in the form of a crossed-out container on the product or its packaging.
- After the end of the service life, hand the product over to a collection point for the corresponding waste or to an organization holding the appropriate permit.
- Hand over the packaging elements (cardboard, polymer materials) to the corresponding streams of recyclable materials.

Contacts

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Conditions of use and storage of the product

The product is intended for educational work in general secondary education institutions and is used only under the control and supervision of a teaching staff member; the recommended age of students — from 10 years, that is, students of grade 5 and of higher grades. Keep the product in a dry, clean and ventilated room at a temperature from +5 to +40 °C and relative air humidity up to 80 % without condensation, separately from heat sources and out of direct sunlight, moisture and dust. Use the product exclusively for its intended purpose and do not allow drops, impacts or other mechanical damage. If you notice damage, a crack or any malfunction, stop working with the product immediately and inform the teacher or the responsible person of the educational institution; repairing the product on your own is prohibited.

WARRANTY CARD

Product name:	Microscope and set of prepared microscope slides
Product model:	LABOTRIX MICRO M1
Serial number:	
Date of sale:	
Warranty period:	12 months from the date of sale
Trading organization:	
Signature of the seller:	

The goods have been received in working order, without visible damage, complete, and have been checked in my presence. I have no claims regarding the quality of the goods; I have read and agree to the operating and warranty service conditions.

Full name of the buyer

Buyer's phone number Buyer's signature

Dear Customer!

Thank you for choosing Labotrix products. After-sales service of this product is provided in accordance with the regulations of the company and the legislation of the country of sale. So that we can serve you quickly and without unnecessary formalities, check that this warranty card is filled in correctly at the moment of purchase and keep it together with the payment document throughout the entire warranty period. When applying for repair, hand the product over to the seller or to the service center together with the filled-in card.

Procedure for applying

1. The right to free warranty service for the product is valid for 12 months from the date of sale specified in the warranty card. Within this period, components that have failed due to a manufacturing defect are repaired or replaced without payment from the buyer.
2. Before contacting, make sure that the malfunction is not caused by the reasons listed in section 9 of this passport, and if possible, use the table of possible malfunctions in section 7.3.
3. After the 12-month warranty period, repairs are carried out for a fee; the cost of work and spare parts is determined depending on the nature of the malfunction.

Grounds for refusal of warranty service

The company reserves the right to refuse free service or to perform the work on a paid basis if at least one of the following circumstances is established:

- absence of the warranty card, its incomplete or corrected completion, and also the absence of a document confirming the purchase;
- non-conformity of the serial number of the product with the number specified in the card, or damage to the factory marking;
- traces of independent disassembly, repair or modification of the product;
- damage caused by violation of the operating rules, connection to an unsuitable power source or external mechanical impact;
- damage as a result of force majeure circumstances.

Service Records

Date of entry	Description of the malfunction	Work performed	Position, signature, full name of the responsible person