

Curvimeter

LABOTRIX CURVIM G9

PRODUCT PASSPORT

Kyiv

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Contents

1. General Information about the Product.....	2
2. Technical Specifications.....	2
3. Package Contents.....	3
4. Safety Precautions.....	3
5. Preparation for Use.....	3
6. Operating Procedure.....	4
7. Care, Maintenance and Troubleshooting.....	4
8. Storage and Transportation Conditions.....	5
9. Warranty Obligations.....	5
10. Product Disposal.....	6
Contacts.....	7
WARRANTY CARD.....	8
Service Records.....	10

1. General Information about the Product

- 1.1. **Product name** — H odometer.
- 1.2. **Trademark** — Labotrix.
- 1.3. **Model** — Curvim G9; full trade designation — LABOTRIX CURVIM G9.
- 1.4. **Manufacturer** — Labotrix Group Limited, China.
- 1.5. **Intended use:** a device for precisely measuring distances and route lengths on geographic maps and plans of various scales. The curvimeter is widely used in geography, geodesy, and topography classes when working with cartographic materials. The device's measuring roller is rolled along the route line, and the result is read from the scale ring corresponding to the map's scale.
- 1.6. **Design features:** the device is equipped with a measuring roller and a sensitive transmission mechanism that transmits the roller's motion to the dial's pointer. The dial has several scale rings, which makes it possible to measure distances on maps of different scales without calculations. The centimeter scale allows direct measurement of length in centimeters, based on one full turn of the pointer.

2. Technical Specifications

- Brand — Labotrix
- Model — Curvim G9
- SKU — LTX-CURVIM-G9
- Product type — device for measuring distances on maps and plans
- Measuring mechanism — roller with mechanical transmission to the dial
- Centimeter scale — one full turn of the pointer corresponds to 1 centimeter
- Scale ring 1 — 1:5 000 for maps at a scale of 1:5 000
- Scale ring 2 — 1:20 000 for maps at a scale of 1:20 000
- Scale ring 3 — 1:50 000 for maps at a scale of 1:50 000
- Measurement accuracy (depending on scale) — ± 5 mm on the map
- Housing material — impact-resistant plastic
- Roller material — elastic polymer
- Power — not required
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Documentation supplied — product passport with warranty card and operating manual
- Packaging — individual box with the contents secured
- Ready-to-use condition — supplied ready for measurement, requires no additional setup
- User requirements — students work with the device on maps under the guidance of the geography teacher
- Service life (year) — 5
- Warranty period (month) — 12

3. Package Contents

- Curvimeter assembly with dial and measuring roller — 1 pcs
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging — 1 pcs

The product does not require assembly before first use. Everything necessary for operation has already been installed at the factory.

4. Safety Precautions

4.1. General requirements

- Before first use, read this passport and keep it together with the product.
- The device is intended for use by students under teacher supervision. Students are allowed to work with the device independently only after occupational safety instruction.
- Inspect the unpacked product: the housing must be intact without cracks, the pointer — move freely, the roller — rotate without sticking.
- The device is not to be given to young children without adult supervision.

4.2. Safety when working with the instrument

- Never put the roller in your mouth and do not allow students to do so — this is dangerous to health.
- Make sure the roller does not catch skin or hair while turning.
- Roll the roller along the map with a gentle, smooth motion, without applying excessive force.
- Do not try to forcibly turn the roller in the reverse direction — this may damage the transmission mechanism.

4.3. Safety When Working with Maps and Materials

- Place maps and plans on a flat, clean surface free of moisture and dirt.
- Do not make permanent marks on the map — use temporary pencil marks that are easy to erase.
- Do not roll or fold maps at a sharp angle: this leads to paper damage and inaccurate measurements.

4.4. It is strictly prohibited

- Wetting the device or immersing it in water.
- Disassembling the transmission mechanism, the pointer, or the roller without authorization.
- Using the device as a pointer, a writing pen, or for other purposes.
- Applying the device to a person's skin for measurement purposes.
- Leaving the device under direct sunlight or near heat sources.

5. Preparation for Use

- 5.1. Unpack the device and remove the protective film from the dial and roller.
- 5.2. Check the free rotation of the pointer: it should move without play or sticking.
- 5.3. Check the free rotation of the measuring roller: it should turn easily, without extraneous noise.

- 5.4. Set the pointer to zero by turning the roller until the pointer points to the 0 mark on the dial.
- 5.5. Lay the map out on a flat, hard surface, smoothing out folds and removing dirt.
- 5.6. Check the map's scale, which is printed in its margins. Keep this in mind for every measurement.

6. Operating Procedure

6.1. Preparing for Measurement

- Determine the map's scale from the label in the map margin.
- Set the pointer to zero by rolling the roller along the dial.
- Place the measuring roller at the starting point of the route being measured, pressing on it gently so as not to damage the map.

6.2. Measuring a Route

- Roll the roller along the route line from start to finish with a smooth, even motion, without lifting the roller off the map.
- If the route is curved, make sure the roller precisely follows the line, moving more slowly through bends.
- At turns in the route, stop, reposition the device, and continue measuring.

6.3. Reading the Result

- After completing the measurement, take the reading from the scale ring corresponding to your map's scale.
- The pointer reading on the 1:50 000 scale gives the distance in kilometers for a map at a scale of 1:50 000.
- The pointer reading on the 1:20 000 scale gives the distance in kilometers for a map at a scale of 1:20 000.
- The pointer reading on the 1:5 000 scale gives the distance in kilometers for a map at a scale of 1:5 000.

6.4. Measuring in Centimeters

- Using the centimeter scale, you can measure distances on map fragments or drawings without regard to scale.
- One full turn of the pointer corresponds to 1 centimeter.

6.5. Finishing the work

- Carefully lift the device off the map, raising it vertically.
- Wipe the roller with a dry soft cloth to remove paper residue and dirt.
- Place the device in a dry place.

7. Care, Maintenance and Troubleshooting

7.1. Cleaning

- Wipe the housing and dial with a soft dry cloth.
- Remove paper residue and dirt from the roller with a dry soft-bristle brush.
- Never immerse the device in water — this damages the mechanism.
- Do not use solvents, alcohol, or aggressive cleaning agents.

7.2. Periodic inspection

- Check the free rotation of the roller and pointer every time before using the device.
- Make sure the pointer settles exactly on zero when the device is set to its starting position.
- Repair of the transmission mechanism and replacement of the roller are performed only by an authorized service center.

7.3. Possible malfunctions and methods of their elimination

Symptom	Possible cause	User actions
The pointer does not move when the roller turns	Mechanism stopped or jammed; dirt in the transmission	Check the roller for contamination, remove paper residue; let the device dry in a warm place
The pointer moves unevenly or sticks intermittently	The pointer's rod or axis is bent; transmission is difficult due to contamination	Turn the roller back and forth several times to clean the mechanism
The pointer reading does not correspond to the measurement	The roller slips on the map due to low pressure or dirt	Apply more pressure to the roller; clean the roller of paper residue
The roller turns with difficulty	Mechanism frozen or rusted; contamination in the bearing	Place the device in a warm place and let it adjust to room temperature
The dial has dimmed or become damaged	Accumulation of moisture or dirt under the protective cover	Wipe the dial with a dry cloth; keep the device in a dry place

8. Storage and Transportation Conditions

- Store the device in a dry room at a temperature of not less than +5 and not more than +40 °C and relative humidity up to 80 % without condensation.
- Protect the device from dust, direct sunlight, temperature spikes, and vibration.
- Do not compress or bend the device during storage.
- Transport the product in its original or similar rigid packaging that protects it from impacts.
- Do not place heavy objects on the packaging with the instrument.
- The storage period before commissioning is unlimited provided that the stated requirements for temperature, humidity and protection against damage are observed.

9. Warranty Obligations

- 9.1. The warranty period of operation of the product is 12 months from the date of sale specified in the warranty card.

- 9.2. The manufacturer guarantees that the product conforms to the declared technical specifications provided that the transportation, storage and operating rules set out in this passport are observed.
- 9.3. During the warranty period, defects of the product that have arisen through the fault of the manufacturer are remedied free of charge. The method of remedy (repair, replacement of a component or replacement of the product) is determined by the service center.
- 9.4. Warranty service is provided on presentation of a correctly and completely filled-in warranty card and of a document confirming the fact and the date of purchase.
- 9.5. The warranty does not cover 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 cover the natural wear of the coating and of the appearance of the product, nor consumables.

10. Product Disposal

- The product is not electrical or electronic equipment, therefore the marking in the form of a crossed-out container does not apply to it.
- After the end of the service life, the product is disposed of according to the rules established at the institution that operated it, with prior separation by materials.
- 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

Name:	Curvimeter
Product model:	LABOTRIX CURVIM G9
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 _____

Telephone of the buyer _____ Signature of the buyer _____

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 of the product is valid for 12 months from the date of sale specified in the warranty card. Within this period, components that have failed because of a manufacturing defect are repaired or replaced at no cost to the buyer.
2. Before applying, 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 subsection 7.3.
3. After the end of the 12-month warranty period, repairs are performed on a paid basis; the cost of the work and of the 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