

3D scanner

LABOTRIX SCAN V1

PRODUCT PASSPORT

Kyiv

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1. General Information about the Product

- 1.1. **Product name** — 3D scanner.
- 1.2. **Trademark** — Labotrix.
- 1.3. **Model** — Scan V1; full trade designation — LABOTRIX SCAN V1.
- 1.4. **Manufacturer** — Labotrix Group Limited, China.
- 1.5. **Intended use:** the portable 3D scanner is designed for use in educational institutions for studying the basics of digitizing objects, computer modeling, and digital data processing, and is also suitable for use outside an educational institution — at home or in personal projects. The scanner is suitable for capturing small and medium-sized objects and makes it possible to create their precise three-dimensional models for further design, analysis, or making copies. The equipment is used in courses on mechatronics, computer design, engineering graphics, and the STEM field.
- 1.6. **Design features:** the scanner is built on the principle of structured light with two infrared projectors and a color sensor array. The design allows scanning objects sized from 5 cm to 30 cm with no restrictions on surface material. Data is transferred to a personal computer via a wired USB connection, where the included software builds a three-dimensional model and shows a preview result on the screen. The scanner housing is made of impact-resistant plastic.

2. Technical Specifications

- Brand — Labotrix
- Model — Scan V1
- SKU — LTX-SCAN-V1
- Product type — portable 3D scanner with structured light
- 3D image formation method — dual-projector structured light with a color sensor array
- Category of scanned objects by size — small and medium-sized objects (up to 30 × 30 × 30 cm)
- Scanning accuracy per single frame (millimeter) — 0.1
- Depth of field (millimeter) — from 100 to 500
- Linear resolution (pixel) — 0.3
- Maximum object size for scanning (centimeter) — 30 × 30 × 30
- Minimum detail size for recognition (millimeter) — 2
- Scanning frequency (frames per second) — 15
- Data transfer interface — USB
- Output formats — STL, OBJ, PLY; files open in standard three-dimensional graphics editors and print slicers
- Surface materials suitable for scanning — almost all (except very transparent or very dark ones)
- Power supply — from the USB port of a personal computer; no separate power source is required
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Packaging for delivery — an individual corrugated cardboard box with content fixation

- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Installation method during operation — on a table, using the support stand from the set
- Work organization — suitable for an individual student workstation or for demonstration by a teacher
- User requirements — work with the product is organized by a teacher or laboratory assistant, students work under supervision
- Service life (year) — 5
- Warranty period (month) — 12

3. Package Contents

- Portable scanner, equipped with binocular optics and infrared illumination — 1 pcs
- USB connection cable for connecting to a personal computer — 1 pcs
- Support stand (holder) for securing the scanner in a set position during scanning — 1 pcs
- Software package for controlling the scanning process and creating a 3D model of the object — 1 set
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging — 1 pcs

The scanner is ready for use immediately after unpacking. No assembly is required. No separate power source is provided: the product is powered from the USB port of the computer to which it is connected.

4. Safety Precautions

4.1. General requirements

- Before first use, read this passport and complete occupational safety training.
- The scanner is operated by trained specialists or educators who understand the operating principles of the device.
- Students may work with the scanner only under the supervision of a teacher or specialist.
- Inspect the scanner before use for mechanical damage, lens abrasion, and the integrity of the power cable.

4.2. Electrical safety

- Connect the scanner to the computer only with the USB cable included in the set; do not use damaged cables or ports.
- Do not attempt to disassemble the scanner housing or independently interfere with its electronic components.
- Before disconnecting the cable or moving the scanner, close the software.
- Protect the USB connector from moisture, dust, and mechanical stress.

4.3. Working with the Optics

- Do not point the scanner directly at sunlight or bright light sources during operation.

- Protect the lens from dust and moisture, and wipe it with a soft cloth before each use.
- Do not touch the lens with bare hands — traces of moisture and grease cause glare and distortion of the results.
- During scanning, make sure the object does not block the scanner's optical axis.

4.4. It is strictly prohibited

- Submerging the scanner in water or exposing it to liquid.
- Leaving the scanner switched on without use for an extended period of time.
- Using the scanner near strong magnetic fields and sources of electromagnetic radiation.
- Scanning hot objects: the maximum operating temperature of the object — 60 °C.
- Disassembling, modifying, or repairing the scanner independently.

5. Preparation for Use

- 5.1. Unpack the scanner and check the package contents against Section 3 of this passport.
- 5.2. Check the technical condition of the scanner: the lens must be clean, and the USB cable and its connectors — undamaged.
- 5.3. Connect the scanner to the personal computer with the USB cable from the set; no separate power source is required.
- 5.4. Install the software on the computer from which you will process the scanning results.
- 5.5. Before scanning real objects, practice on simple geometric shapes — cubes or cylinders.

6. Operating Procedure

6.1. Lighting Setup

Place the scanner and the object in a well-lit room, avoiding direct sunlight. Natural lighting level — optimal. If there is not enough light in the room, turn on additional LED lighting.

6.2. Positioning the Object

- Place the object on a neutral surface (a white or gray base) at a distance of 25–35 cm from the scanner's lens.
- Make sure the object is fully visible in the preview on the computer screen.
- Avoid positioning the object near the edges of the scanner's working area.

6.3. Starting the Scan

- Start the scan in the software on the computer.
- Hold the scanner steady during scanning — do not move it abruptly.
- Wait for scanning to finish (the process indicator in the software should stop).

6.4. Reviewing the Results

- Review the resulting 3D model on the computer screen and decide whether a repeat scan is necessary.
- If necessary, edit the model by removing artifacts and unnecessary details.

6.5. Saving the Result

- Save the model in a format that matches its further use: STL — for three-dimensional printing, OBJ — for editing in three-dimensional graphics software, PLY — if it is necessary to preserve surface color data.
- If needed, copy the model file to another storage medium or transfer it for further processing.

7. Care, Maintenance and Troubleshooting

7.1. Cleaning

- Wipe the lens with a soft, dry cloth before each use.
- Clean the scanner housing with a slightly damp cloth, then wipe it dry.
- Do not use aggressive chemical agents or organic solvents for cleaning.
- Remove accumulated dust from the USB port using a small brush.

7.2. Periodic inspection

- Check the contacts of the USB port and cable monthly, wiping them with a dry cloth.
- Make sure the optics remain clean and not matte — this affects scan quality.
- Repair of the scanner's electronics is performed only by an authorized service center; independent repair is not permitted.

7.3. Possible malfunctions and methods of their elimination

Symptom	Possible cause	User actions
The scanner is not receiving power (no indication, not detected by the computer)	The USB port does not provide sufficient power; the cable is damaged; the port is disabled	Connect the cable directly to the USB port on the computer, without a hub; check the cable; restart the computer
Poor Scan Quality (Noisy Model)	Insufficient light; the object's surface is very dark, glossy, or transparent; incorrect distance to the lens	Improve the lighting; if necessary, matte the surface with a thin layer of chalk or spray; maintain a distance of 25–35 cm to the lens
The scanner does not connect to the computer	The USB cable is damaged; drivers are not installed; the USB port is dirty	Check the cable; install/reinstall the drivers; clean the USB port
The software returns an error when loading the model	The model contains artifacts; the file format is incompatible; insufficient memory on the computer	Remove artifacts in the model editing software; convert the file to a different format; free up disk space

Symptom	Possible cause	User actions
The lens is dirty or covered with condensation	Moisture or dust; touching with hands	Wipe the lens with a soft cloth; let the scanner dry before use

8. Storage and Transportation Conditions

- Store the scanner in a dry, enclosed room at a temperature from +5 °C to +40 °C and relative humidity up to 80 %, without condensation.
- Store and transport the scanner in its original packaging or other container that protects against mechanical impacts and moisture.
- During transportation, avoid sharp impacts, vibrations, and prolonged exposure to temperatures above 40 °C.
- Do not place heavy objects on the packaging containing the scanner.
- The storage period before commissioning is unlimited provided that the stated requirements 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 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

Name:	3D scanner
Product model:	LABOTRIX SCAN V1
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