

Demonstration electrostatics set

LABOTRIX ELSTAT E5

PRODUCT PASSPORT

Kyiv

2026

Contents

1. Product Basics
 2. Technical specifications
 3. Equipment
 4. Safety precautions
 5. Preparation for work
 6. Procedure
 7. Care, maintenance and possible malfunctions
 8. Storage and transportation conditions
 9. Warranty obligations
 10. Product disposal
- Contacts
- WARRANTY CARD
- Service notes

1. Basic product information

- 1.1. Product name — Electrostatics demonstration set.
- 1.2. Trademark — Labotrix.
- 1.3. Model — Elstat E5; full trade name — LABOTRIX ELSTAT E5.
- 1.4. Manufacturer — Labotrix Group Limited, China.
- 1.5. Intended use: The set is intended for demonstration experiments on electrostatics in the physics classroom of a secondary school. Using the set, the teacher shows the class the main phenomena: electrification of bodies, interaction of electric charges, separation of substances into conductors and dielectrics, uneven distribution of charge on the surface of conducting bodies, accelerated loss of charge by pointed areas, and the emergence of a field around charged objects. The experiment is performed by the teacher or a laboratory assistant in front of the class; students can only participate in individual operations according to the task and under the direct supervision of the teacher. The set does not have its own charge source: an external electrophoretic machine (Wimshurst generator) is required for operation.
- 1.6. Design features: The set consists of eight devices on insulating bases and a storage box. The devices include a conductive ball, a spherical electrode, a needle electrode, an indicator sultan, a neon lamp, electric bells, a set of cables with clamps and metal chains. All devices contain only electrodes and indicators, without a built-in power supply.

2. Technical specifications

- Brand — Labotrix
- Model — Elstat E5
- The article number is LTX-ELSTAT-E5
- Product type — electrostatics demonstration kit
- Purpose - teaching physics in general education institutions
- Number of devices in the set (pieces) — 8
- Static charge source - not included; external electrostatic machine required
- Built-in power supply — no
- Mains power supply - does not require
- Material of the device bases - plastic, metal
- Electrode material - metal
- The material of the insulating posts is plastic.
- Materials of connecting elements - copper, rubber, metal
- Packaging - storage box
- Conditions for successful experiments are dry indoor air, clean and dry insulating surfaces.
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate

- Storage conditions — not lower than +5 and not higher than +40 °C, relative humidity up to 80%
- Service life (year) — 5
- Warranty period (month) — 12

3. Equipment

- Conductor ball on insulating holder — 1 pc.
- Spherical electrode on a stand with a base — 1 pc.
- Needle (pointed) electrode on a stand with a base — 1 pc.
- Indicator sultan (a bundle of paper strips on a rod) — 1 pc.
- Neon lamp on a rubber stopper — 1 pc.
- Electric bells with a moving ball-reed — 1 pc.
- Set of connecting cables with clamps - 1 set.
- Metal chains for grounding — 2 pcs.
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging (box) — 1 pc.

The set does not include an electrophoretic machine. To work, you need a Labotrix electrostatic machine (Wimshurst generator) or similar, which is ordered separately. A candle, matches, friction sticks and equipment for experiments are taken from a standard physics classroom set.

4. Safety measures

4.1. General requirements

- Before first use, read this passport and the instructions for the electrophoresis machine, which is the source of charge for the experiments.
- Experiments are performed by a teacher or laboratory assistant; students may participate in individual operations only under the direct supervision of an adult.
- Be sure to inspect the unpacked set: there should be no cracks on the insulating posts, no burrs or scratches on the balls, the neon lamp bulb should be intact, and the cables should not have damaged insulation.
- Before the experiments, students are instructed on safety; establish a safe distance between the demonstration table and the first desks.

4.2. Working with electrostatic charges

- The set operates with very high voltage generated by the electrophoresis machine. The spark discharge is painful, although not fatal; the discharge may cause startle, involuntary movement, or falling.
- Never assume that an installation is safe just because the machine has stopped. Always discharge and ground all equipment: first bring the machine's discharge balls together, then touch each electrode and all metal parts in turn with a chain.
- Hold the appliance only by the insulating posts and bases. Do not touch two appliances or clamps connected to different poles at the same time.

- Dry air in the room is a prerequisite for successful experiments. In humid air, the charge drains quickly and the experiments fail; in very dry air, on the contrary, a large charge accumulates and the discharge becomes more noticeable. Adjust the duration of rotation of the knob depending on the state of the air, and not on the desired result.
- Grounding after each experiment is mandatory. Leave the instruments connected to the ground bus for a few minutes; ground before reconnecting cables and before placing in the box.

4.3. Health protection of individuals

- Students with implanted pacemakers, defibrillators, cochlear implants, hearing aids, or other electronic medical devices should not participate in experiments, touch the devices, or stand near the demonstration table. Spark discharge and strong electric fields can disrupt the operation of these devices.
- Clarify this issue in advance through the homeroom teacher or school health worker. Such students will observe the demonstration from a safe distance or on video.
- Keep smartphones, tablets, laptops, and other electronic devices as far away from the installation as possible - the discharge may damage them.

4.4. It is strictly forbidden

- To pass an electrical discharge through a person's body; to touch simultaneously two devices or parts connected to different poles.
- Touching clamps, electrodes, and cables with bare hands during machine operation and experiments.
- Conduct experiments on a wet floor, with wet hands, or in a room with excessive humidity (more than 80%).
- Leave the unit unattended when it is charging or connected to a vehicle.
- Modify devices, replace parts with homemade ones, or perform repairs in unauthorized workshops.

5. Preparation for work

- 5.1. Unpack the kit and check the packing list for the presence of all items. Inspect each device for mechanical damage.
- 5.2. Wipe all balls, electrodes, and insulating posts with a dry, soft cloth. Dust and moisture on insulators are the most common cause of failed experiments.
- 5.3. Arrange the devices on the display table so that they are visible to the entire class. The devices should be at least a few dozen centimeters away from walls, metal furniture, water pipes, and radiators.
- 5.4. Prepare the grounding: a metal chain connected to the cabinet grounding bus. This is your working tool for discharging and grounding.
- 5.5. Prepare the electrophoretic machine according to its instructions: wipe the discs, check the brushes and contacts, and bring the discharge balls into contact.

- 5.6. Perform a test experiment: connect the sultan to the machine and turn the handle - the indicator should respond. If not, look for the reason before starting the lesson.

6. Procedure

6.1. Preparing the installation

Make sure that the machine is completely discharged and the discharge balls are touching. Arrange the devices according to the experiment diagram and connect them with cables before starting charging. Check that the clamps securely grip the bare metal. If necessary, ground the second pole of the machine with a chain.

6.2. Charging and monitoring

Turn the machine handle slowly and evenly, gradually increasing the power. As soon as the desired effect is achieved (stripes diverge, lamp flashes, bells ring), stop turning. Do not accumulate more charge than necessary - this accelerates the wear of the machine.

6.3. Discharge and grounding

This is the most important part of the job. First, bring the discharge balls of the machine together. Then, using a chain, touch each electrode, bells, sultan, and all metal parts in turn. Leave the devices connected to the grounding bar for a few minutes.

6.4. Moving on to the next experiment

Only reconnect cables, rearrange devices, or change the installation layout after complete discharge and grounding.

6.5. Completion of work

After class, re-discharge and ground all devices, disconnect cables, wipe devices with a dry cloth, and carefully place them in a box.

7. Care, maintenance and possible malfunctions

7.1. Cleaning

- Before cleaning, discharge and ground all devices. Wipe metal, plastic, and insulating posts with a dry, soft cloth.
- If the surface is heavily soiled, lightly dampen the cloth with clean water, and then be sure to wipe the surface dry.
- Do not use abrasive powders, solvents, acetone, or aggressive chemicals: they scratch metal and destroy plastic.
- Remove burrs and irregularities on the balls with a gentle polishing motion. Protect the needle electrode tip from blunting or bending.

7.2. Periodic control

- Inspect the ball and clamps monthly; make sure there is no visible damage.

- Check the integrity of the cable insulation and the elasticity of the crocodile clips.
- Straighten the sultana strips after each session; check the bells to make sure the ball swings freely.
- Protect the neon lamp from impacts; do not pull the leads near the bulb. The product is maintenance-free; repairs should only be performed by an authorized service center.

7.3. Possible malfunctions and ways to eliminate them

Symptom	Possible cause	User actions
Experiments fail; Sultan's stripes do not diverge	High humidity; damp insulation posts; machine does not charge	Ventilate and warm the room, wipe the devices with a dry cloth, check the machine
The charge disappears quickly.	Leakage on wet or dirty surface; devices close to grounded objects	Wipe the insulators, move the devices away from walls and metal pipes, and ground them better.
No response even though the machine is charging	The clamp has caught paint or varnish; there is a break in the cable	Clean the contact to bare metal, replace the cable
The spherical electrode does not hold a charge	Burr on the ball; dust on the surface; damp weather	Carefully polish the surface, wipe the ball, ventilate the office
The bells don't ring.	Both connected to the same pole; ball stuck; no contact	Connect one to the opposite pole or to ground, release the ball, check the clamps
The neon lamp does not light up.	Too much light in the office; poor contact; low charge	Darken the cabinet, check the connections, increase the rotation of the handle
Sparks and splinters are out of place	Cables close to each other or to grounded objects; insulation damaged	Untangle the cables, raise them above the table, replace the damaged cable
The sultana stripes stuck together	Damp or wrinkled paper	Dry, straighten or replace the strips

8. Storage and transportation conditions

- Store the kit in a box, in a dry, heated room at a temperature not lower than +5 and not higher than +40 °C and humidity up to 80% without condensation.
- Before long-term storage, make sure all devices are dry. A damp set in a closed box will spoil the fastest.
- Keep away from direct sunlight, heat sources and vibrations.
- Transport the set in a rigid package (box) by any type of closed transport, avoiding impacts and sudden temperature changes.
- Do not place heavy objects on top of the set packaging.
- The storage period before commissioning is unlimited if the stated conditions are observed.

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

LABOTRIX GROUP LIMITED

Room 910, Isteelesia 1 No. 18 Fu'an Blvd, Pinghu Subdistrict,
Longgang District, Shenzhen City,
Guangdong Province, China 518111
Phone: +86 13925261264
E-mail: salesmanager@labotrix.com
Website: <https://labotrix.com/>

Address in Ukrainian:

LABOTRIX GROUP LIMITED

Room 910, Istilazia 1, Fuan Boulevard No. 18,
Pinghu Subdistrict, Longgang District,
Shenzhen, Guangdong Province, China 518111
Telephone: +86 13925261264
E-mail: salesmanager@labotrix.com
Website: <https://labotrix.com/>

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:	Demonstration electrostatics set
Product model:	LABOTRIX ELSTAT E5
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