

Hydroponic unit for plants

LABOTRIX HYDRO N2

PRODUCT PASSPORT

Kyiv

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1. General Information about the Product

- 1.1. **Product name** — a hydroponic unit for plants.
- 1.2. **Trademark** — Labotrix.
- 1.3. **Model** — Hydro N2; full trade designation — LABOTRIX HYDRO N2.
- 1.4. **Manufacturer** — Labotrix Group Limited, China.
- 1.5. **Intended use:** the unit makes it possible to grow plants without soil — in a nutrient water solution — and to observe them under conditions set and maintained by the device itself. It is used in biology and natural science lessons and within project work in the natural sciences and mathematics field: for seed germination, comparing growth rates under different lighting modes, and observing the development of the root system, which cannot be seen in soil. The product is intended for general secondary education institutions.
- 1.6. **Design features:** the basis of the product — a reservoir with twelve planting cells, a pump for solution circulation, and a light fixture to support photosynthesis. The light fixture is mounted on a telescopic stand, so the lighting height is adjusted as the plants grow, without moving the unit itself. The lighting and circulation modes are set on the control unit; a built-in timer switches them on and off on schedule, and a humidity sensor shows the condition of the environment in the root zone. Power is supplied from the electrical mains through an external power supply, so there is no mains voltage in the reservoir itself. Parts that come into contact with water are made of polymers resistant to constant moisture.
- 1.7. **Application restrictions:** the product is a teaching aid. It is not intended for industrial or home-garden crop cultivation, and the plants grown in it are not intended for consumption: the composition of the nutrient solution is selected for educational purposes and is not controlled as it would be for food products.

2. Technical Specifications

- Brand — Labotrix
- Model — Hydro N2
- Product type — a tabletop hydroponic unit with lighting and solution circulation
- Number of planting cells (pcs) — 12
- Solution circulation system — built-in, pump-driven, supplying solution to the root zone
- Lighting system — built-in LED light fixture to support photosynthesis
- Light fixture height adjustment — telescopic stand, position changes as the plants grow
- Control unit — sets the lighting and circulation modes
- Timer — built-in, switches modes on and off on schedule
- Environment monitoring — humidity sensor
- Overall dimensions in the operating position (cm) — 35 × 26, height from 25 to 39, adjustable
- Reservoir and cell material — polymer resistant to prolonged contact with water
- Supply voltage (V) — 220 AC, frequency 50 Hz

- Product power supply — via an external power supply unit, there is no mains voltage in the reservoir
- Power supply power rating (W) — 24
- Installation method — freestanding, on a flat horizontal surface of sufficient load-bearing capacity
- Language of the applied markings — Ukrainian
- Location for the inventory marking — a flat area on the reservoir housing
- Scope of supply — the product is supplied assembled, requires no commissioning
- Scope of maintenance performed by the institution — rinsing the reservoir and wiping surfaces without disassembling the product
- Suitability for repeated cycles — designed for multiple growing cycles over the service life
- Operating conditions — premises of an educational institution, air temperature from +5 to +40 °C, relative humidity from 40 to 60 % without condensate
- Service life (year) — 5
- Warranty period (month) — 12

The nutrient solution, fertilizers, seeds, and cell substrate are not included in the package and are selected by the educational institution for the specific experiment. The product size is given for the operating position; the height changes together with the position of the light fixture on the stand.

3. Package Contents

- Reservoir with twelve planting cells — 1 pcs
- Solution circulation system with pump — 1 set
- LED light fixture on a telescopic stand — 1 set
- Mode control unit with timer — 1 pcs
- Humidity sensor — 1 pcs
- External power supply, 24 W — 1 pcs
- Operating manual — 1 pcs
- Product Passport and Warranty Card — 1 pcs
- Individual transport packaging — 1 pcs

The completeness of the package contents is checked against the packing list immediately after unpacking. The educational institution provides seeds, germinated seedlings, fertilizers for preparing the nutrient solution, and measuring vessels on its own.

4. Safety Precautions

4.1. General requirements

- Before first use, read this passport and keep it together with the manual throughout the entire service life of the product.
- The unit is prepared for operation, filled with solution, and maintained by the teacher or laboratory assistant; students work with it under supervision.
- Do not leave the switched-on unit unattended overnight or on weekends unless the operating mode provides for this.

- Do not use the product or its components for purposes other than intended, in particular for preparing or storing food products.
- Plants grown in the unit are not fit for consumption; after the experiment is completed, they are disposed of together with the plant residues.

4.2. Electrical safety in the presence of water

- The product operates from the mains and contains water at the same time, so topping up the solution, rinsing the reservoir, removing plants, and any cleaning are performed **only after disconnecting the power supply from the mains**.
- Place the power supply, plug, and connecting connectors above the level of the reservoir and keep them dry.
- Do not immerse the power supply, control unit, or connecting cables in water; wipe off any drops or splashes on them immediately with a dry cloth.
- Do not use the product with a damaged cable, plug, or power supply, or after water has entered the electrical components.
- Place the unit so that the power cable does not run through walkways and does not hang over the edge of the table.

4.3. Working with the solution and plants

- The nutrient solution is prepared by the teacher or laboratory assistant according to the fertilizer instructions; the concentration is not exceeded.
- Wear gloves while preparing the solution, and wash your hands after work.
- Do not switch on circulation if the solution level is below the minimum mark: a pump running dry fails.
- Do not carry the unit with a filled reservoir — the solution spills onto the electrical components.
- Do not look at the switched-on light fixture from a short distance, and do not leave the lighting switched on outside the set mode.

4.4. It is strictly prohibited

- Top up the solution, rinse the reservoir, or remove plants while the unit is switched on.
- Immerse the product or its electrical components in water or wash them under a running stream.
- Disassemble the power supply, control unit, or pump, or repair the electrical part independently.
- Connect the product to a mains supply with a voltage different from that indicated on the power supply, or through a damaged outlet.
- Use, in place of the supplied power supply, a different one not specified by the manufacturer.
- Use the product and the plants grown in it for food purposes.
- Place foreign objects on the unit or cover the switched-on light fixture.

5. Preparation for Use

- 5.1. Unpack the product, remove the transport inserts, and inspect the reservoir inside and outside. Even a small crack in the wall means leakage during operation, so such a reservoir is not permitted to be filled.

- 5.2. Choose a location: a flat horizontal surface able to bear the weight of the filled reservoir, near an outlet, away from direct sunlight, drafts, and heating appliances. An external source of heat or light negates the constancy of conditions for the sake of which the unit is used.
- 5.3. Assemble the light fixture on the telescopic stand and set it to the lowest position. Check that the stand locks in place and does not collapse under the weight of the light fixture.
- 5.4. Rinse the reservoir and cells with clean water without detergents.
- 5.5. Prepare the nutrient solution according to the fertilizer instructions and pour it into the reservoir, without exceeding the maximum level mark.
- 5.6. Place seeds or germinated seedlings in the cells. Leave unused cells closed to reduce evaporation.
- 5.7. Connect the power supply to the mains and check operation: the pump should create noticeable movement of the solution, the light fixture — evenly illuminate the entire area of the reservoir, the humidity sensor — show the condition of the environment.
- 5.8. Set the initial lighting and circulation modes on the control unit and check that the timer switches them at the set time.

6. Operating Procedure

6.1. Lighting and circulation modes

- Set the lighting duration and circulation frequency according to the crop and the experiment conditions; the timer maintains the selected schedule without user involvement.
- During a single observation, modes are not changed: otherwise the result cannot be compared with the control variant.
- If the experiment involves comparing modes, change only one parameter and leave the rest unchanged.

6.2. Light fixture height

- Lower the light fixture to its lowest position at the start of the experiment and raise it as the plants grow, maintaining a constant distance to the tops of the plants.
- A light fixture placed too low causes leaf burns, too high — stem stretching and shoot curvature.
- Adjust the height with the lighting switched off, holding the stand with one hand.

6.3. Solution monitoring

- Check the solution level and the humidity sensor reading daily; top up the solution to the mark after first disconnecting the unit from the mains.
- Periodically replace the solution completely and rinse the reservoir.
- A cloudy solution, deposit on the walls, or a smell of decay — reason to replace the solution immediately, regardless of the schedule.

6.4. Observation and recording of results

- Take readings at the same time of day: plant height, number of leaves, condition of the root system, and the humidity sensor reading.

- Do not remove plants from the cells unless necessary — this disrupts root development and spoils the comparability of results.
- Record the results in the observation table immediately; they are used to plot a growth chart and compare experiment variants.

6.5. Finishing the work

- Turn off the unit and disconnect the power supply from the mains.
- Drain the solution, remove plant residues, rinse the reservoir, cells, and circulation channels.
- Dry the reservoir and lower the light fixture to its lowest position.

7. Care, Maintenance and Troubleshooting

7.1. Cleaning

- Before any cleaning, disconnect the unit from the mains.
- Rinse the reservoir, cells, and circulation channels with warm water after each growing cycle; remove deposits with a soft brush without abrasive agents.
- Wipe the power supply, control unit, and sensor with a dry cloth only.
- Wipe the light fixture with a dry soft cloth: dust and solution splashes on it reduce illumination.
- Do not use detergents, solvents, or chlorine-based products in the reservoir — their residues harm the plants.

7.2. Periodic inspection

- Inspect the power cable, plug, and connectors; a product with a damaged cable is not switched on until the damaged part is replaced.
- Check the patency of the circulation channels: clogged channels reduce the supply of solution to the roots.
- Check that the telescopic stand locks securely and that the light fixture is reliably attached.
- Repair of the electrical part is performed only by an authorized service center.

7.3. Possible malfunctions and methods of their elimination

Symptom	Possible cause	User actions
Pump does not create solution movement	Solution level below the minimum; clogged channels or pump filter; circulation mode not set	Top up the solution, rinse the channels and filter, check the mode on the control unit
Light fixture does not switch on or shines unevenly	Lighting mode not set; the timer switched off the lighting on schedule; connection between the light fixture and the power supply is broken	Check the mode and current time on the control unit, check the light fixture connector
Humidity sensor reading does not change	Sensor is dirty or installed above the root zone; connection is broken	Rinse and dry the sensor, install it in the root zone, check the connection

Symptom	Possible cause	User actions
A deposit quickly forms on the reservoir walls, and the solution becomes cloudy	Excessively intense lighting; high fertilizer concentration; plant residues in the reservoir	Reduce the lighting duration, replace the solution, remove residues, and rinse the reservoir
Plants stretch out, stems are thin	Light fixture placed too high; insufficient lighting duration	Lower the light fixture closer to the tops of the plants, increase the lighting duration in the mode
Leaves with burns or dry spots	Light fixture placed too low; drops of solution on the leaves under lighting	Raise the light fixture, carefully remove drops from the leaves
Unit does not work after switching on	Power supply not connected or damaged; no voltage at the outlet	Check the connection and the outlet; if the power supply is damaged, replacement is performed by the service center

If the malfunction is not eliminated by the actions listed, stop using the product and contact the supplier.

8. Storage and Transportation Conditions

- Between growing cycles, the unit is kept with an empty and dried reservoir, with the light fixture in the lowest position.
- Store the product in a heated room at a temperature from +5 to +40 °C and relative humidity not exceeding 80%, without condensation.
- Protect the product from direct sunlight, dust, and proximity to heating appliances.
- Transport the product in its factory packaging by any type of enclosed transport, protecting it from impacts and overturning; the reservoir is transported empty and dry.
- After transportation at a low temperature, keep the product indoors for at least two hours before switching it on.
- The storage period is unlimited provided that the stated conditions 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:	Hydroponic unit for plants
Product model:	LABOTRIX HYDRO N2
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