

VERTICAL HYDROPONICS FOR THE CLASSROOM

Cultivating minds, nurturing the future.

A vertical hydroponic laboratory on wheels where students grow real crops and measure what makes them thrive — pH, conductivity, temperature, light and oxygen — turning sustainability into a science they can see, test and improve.

THE IDEA

A living laboratory, right in the classroom

EcoGrow Pro is more than a growing system. It brings sustainable agriculture into the school as a working experiment: students plant, feed and harvest real crops, while sensors reveal the chemistry, physics and biology behind every leaf. Water conservation and responsible resource management stop being slogans and become measurable results.





01 — GROW

Real crops, real stakes

Up to 100 plants on three tiers of food-grade channels, fed by a pump and reservoir and lit by full-spectrum LED grow bars. Lettuce, herbs, flowers or trial crops — the class decides, plants and harvests.

02 — MEASURE

Data behind every leaf

From a 3-in-1 nutrient probe to a wireless sensor suite and fully automated fertigation: students read pH, EC/TDS, temperature, light, UV and oxygen, then adjust the system and watch the plants respond.

100	24/7	3	~90%
plant sites on three growing tiers	continuous monitoring of the nutrient solution	versions — Basic, Standard, Advanced	less water than soil farming — a lesson students can measure*

STEP 1

Grow

Seed, transplant and tend crops through their full life cycle.

STEP 2

Measure

Log pH, conductivity, temperature, light and oxygen over days and weeks.

STEP 3

Analyse

Plot trends, compare treatments, find the mathematics in the biology.

STEP 4

Optimise

Change one variable, predict the outcome, test it on the next crop.

> **“Students don't just learn that hydroponics saves water — they measure how much, and they find out what happens to the plants when they get the nutrients wrong.”**

* Typical figure for recirculating hydroponic systems compared with open-field irrigation; results depend on crop and climate.

WHY ECOGROW PRO

Six reasons it belongs in your curriculum



Every age group — from a sprouting seed to a controlled experiment.

01

Real-world science

Real-time data, nutrient management and environmental monitoring put the scientific method into practice — hypothesis, test, evidence, conclusion.

02

STEM integration

From the biochemistry of photosynthesis to the engineering of a recirculating system, one platform covers science, technology, engineering and mathematics.

03

Critical thinking

Students monitor conditions, make data-driven decisions and live with the consequences on the next harvest — the kind of judgement every career needs.

04

Educational versatility

Primary classes follow a plant's life cycle; secondary students run controlled experiments on light, nutrients and water chemistry — same unit, different depth.

05

Climate & nutrition

Students discover how modern agriculture can feed a growing population while cutting water use and land pressure — and taste the results.

06

Eco-conscious innovators

A visible commitment to sustainability at school, and a generation of students who are both environmentally aware and technically capable.

THE ECOGROW ADVANTAGE

An investment that yields growth — in plants and in young minds.

- Hands-on learning that reaches beyond the traditional classroom.
- Future-ready skills: sensors, data, automation and IoT.
- An ongoing platform that evolves with the curriculum, crop after crop.
- Environmental stewardship students practise, not just hear about.
- Collaboration, communication and leadership on shared growing projects.
- Works with ATP Connect and Gali for guided digital experiments.

THE HARDWARE

A complete vertical farm, built for schools



ECOGROW PRO — THREE TIERS, 100 PLANT SITES

01

Lightweight frame on wheels

A powder-coated metal structure on castors: move it between classrooms, roll it to the window, park it in the lab. No plumbing or construction required.

02

Food-grade growing channels

High-quality PVC channels on three tiers hold up to 100 net pots. A pump recirculates the nutrient solution from the reservoir through every channel and back.

03

LED grow lighting

Three 90 cm, 40 W full-spectrum LED grow bars — one per tier — driven by an IP67 24 V power supply, so crops grow evenly whatever the weather outside.

04

80-litre reservoir & pump

An 80 L (21 US gal) tank with submersible pump sits in the base, where students mix, sample and correct the nutrient solution.

05

Safe electrical panel

Five Schuko sockets behind a 1P+N C10 thermal-magnetic residual-current breaker — the electrical system is built to CE safety standards with life-saving protection.

06

Sensors that fit the lesson

Choose a 3-in-1 nutrient probe, a wireless sensor suite, or automated fertigation with app and cloud analytics — see the three versions overleaf.

142×60×190	100	3 × 40 W	80 L	79 kg
cm (W × D × H) — max. footprint	plant sites on 3 tiers	LED grow bars, 90 cm	reservoir with pump	system weight (174 lb)



Recirculating loop

Solution flows through each channel and returns to the tank — the water-saving principle students quantify.



Control panel

Lights, pump and sockets are switched from one panel at working height, protected by the residual-current breaker.



Automated dosing (Advanced)

The NIDO ONE V2 fertigation unit doses nutrients and pH corrector from its own bottles, on set-points the class defines.

CONFIGURATIONS

Three versions, one growing system

Every EcoGrow Pro shares the same frame, channels, lighting, reservoir and electrical panel. The versions differ in how the class measures and controls what is happening in the water.



BASIC

EcoGrow Pro Basic

The complete growing system with a robust 3-in-1 probe for the nutrient solution.

- pH electrode with renewable fibre junction
- Amperometric EC / TDS sensor
- Integrated temperature sensor with automatic compensation
- Continuous 24-hour readings; quick to set up, simple to use

BEST FOR

Getting started with hydroponic STEM — primary and lower-secondary.



STANDARD

EcoGrow Pro Standard

The Basic system, with the probe replaced by a wireless data-logging sensor suite for in-depth measurement.

- Light logger — three ranges up to 150,000 lx
- Oxygen logger — in air and dissolved
- UVA and UVB loggers
- Wi-Fi module and rechargeable battery module — sensors stream to any tablet or laptop

BEST FOR

In-depth measurement, data collection and lab reports — secondary science.



ADVANCED

EcoGrow Pro Advanced

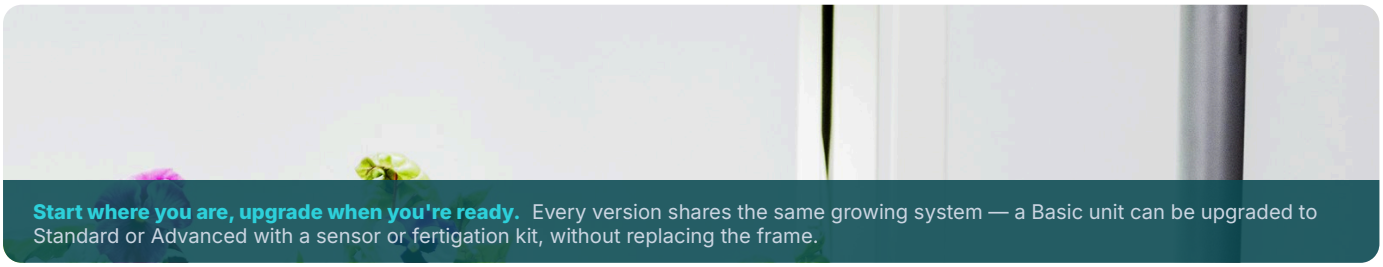
Everything in Standard, plus the NIDO ONE V2 automated fertigation controller.

- Continuous pH, EC, water and air temperature, humidity
- Automatic nutrient and pH dosing to class-defined set-points
- NIDO app for remote control; NIDO LAB web platform with Excel export
- Introduces IoT, automation and control systems

BEST FOR

Full automation, long-term experiments and advanced data analysis — upper-secondary and vocational.

WHAT'S INCLUDED	BASIC	STANDARD	ADVANCED
Frame on wheels, 3 tiers, 100 plant sites, 3 × 40 W LED bars, 80 L tank & pump, electrical panel	✓	✓	✓
3-in-1 nutrient probe — pH, EC/TDS, temperature	✓	—	—
Wireless sensor suite — light, oxygen, UVA, UVB, Wi-Fi & battery modules	—	✓	✓
NIDO ONE V2 fertigation — pH, EC, temperature, humidity, automatic dosing, app & NIDO LAB	—	—	✓



Start where you are, upgrade when you're ready. Every version shares the same growing system — a Basic unit can be upgraded to Standard or Advanced with a sensor or fertigation kit, without replacing the frame.

SENSORS & DATA

What the class can measure

Laboratory-grade instruments, sized for a classroom. Standard adds a wireless suite of data loggers; Advanced adds continuous water chemistry and automated control.

STANDARD & ADVANCED

Wireless sensor suite DATA LOGGERS

NUL-204 Light logger
Ranges 0–1,000 · 0–6,000 · 0–150,000 lx · resolution 1 / 1 / 6 lx · 16-bit ADC · up to 3,000 samples/s

NUL-205 Oxygen logger
In air 0–25 % · dissolved 0–125 % and 0–12.5 mg/L · resolution 0.1 % / 0.1 % / 0.01 mg/L · 13-bit ADC · 100 samples/s

NUL-230 UVB logger
0–1,500 mW/m² · resolution 0.2 mW/m² · 15-bit ADC · 100 samples/s

NUL-232 UVA logger
0–65,000 mW/m² · resolution 5 mW/m² · 15-bit ADC · 100 samples/s

WIFI-202 Wi-Fi communication module
Streams the sensor chain to tablets, laptops or the interactive display — no software install required

BAT-202 Battery module
2,300 mAh · output 4.7–5 V, 0.5 A max with over-current protection · charges at 4.5–6 V, 500 mA

ADVANCED ONLY

NIDO ONE V2 fertigation AUTOMATED CONTROL

pH
Range 4–10 · resolution 0.01 · accuracy ±0.05 · 2-point calibration (7.01 / 4.01) with warning system

Conductivity (EC / TDS)
Range 0–5.0 mS · resolution 0.01 mS · accuracy ±0.05 mS · automatic temperature compensation

Water & ambient temperature
Water 5–40 °C, ±0.5 °C · ambient 0–50 °C, ±0.2 °C · resolution 0.1 °C

Ambient humidity
10–100 % RH · resolution 1 % · accuracy ±3 % RH

Unit
100–220 V AC · 3–30 W · IP44 · reservoirs up to 3,000 L · 375 × 230 × 200 mm (335 mm with bottles) · 3.6 kg

Software
NIDO app — live values and 7-day history, remote control of every set-point · NIDO LAB web platform — unlimited history, comparisons, Excel/PDF export



Basic version: single combined probe for hydroponic nutrient solutions — pH electrode with renewable fibre junction, amperometric EC/TDS sensor and integrated temperature sensor with automatic temperature compensation; continuous 24-hour monitoring. Sensor specifications are the manufacturers' published values and may be updated without notice.

IN THE CLASSROOM

Six experiments to start with

01

Plant growth monitoring

Track how light, temperature, humidity and nutrients change growth rate — and which one matters most for each crop.

02

Photosynthesis study

Measure oxygen production and CO_2 consumption under different light intensities and spectra in a controlled environment.

03

Water quality control

Analyse pH, conductivity and dissolved oxygen, and learn why water chemistry decides success or failure in hydroponics.

04

Nutrient analysis

Explore the role of macro- and micro-nutrients, deficiency symptoms and the science of a balanced nutrient solution.

05

System design & control

Engineer, build and manage a recirculating system — flow rates, pump cycles and, in Advanced, closed-loop automation.

06

Data analysis

Turn sensor logs into graphs, spot trends and mathematical relationships, and defend conclusions with evidence.

PART OF THE ATP ECOSYSTEM

EcoGrow grows the experiment. ATP Connect and Gali guide it.

EcoGrow creates a living, hands-on experiment; **ATP Connect** extends it with guided digital lessons, assessments and class analytics, and **Gali**, the AI tutor, supports students and teachers before, during and after each session — whatever the teacher's background in agronomy or chemistry.

Pair EcoGrow with the **ATP Mobile Lab** and the plant-physiology, chemistry and biology trays become one continuous programme: from seed to data, from data to decision.

ATP MOBILE LAB · ATP CONNECT · GALI AI TUTOR · atpconnect.app



For schools

- A working farm in any classroom — no plumbing, no dedicated room
- One unit, every level: from life cycles to controlled experiments
- Visible, edible results that keep students engaged all year

For education authorities

- Sustainability, climate and nutrition goals taught through practice
- Three versions scale from a pilot to a district programme
- Integrates with ATP Connect for curriculum-aligned content and analytics

For distributors & partners

- A clear Basic / Standard / Advanced ladder with upgrade paths
- Consumables, sensors and NIDO LAB subscriptions for recurring revenue
- Complements the ATP Mobile Lab and Educational Systems range

TECHNICAL DATA

EcoGrow Pro — data sheet

Type	Vertical hydroponic growing system on wheels, for educational use
Overall dimensions	142 × 60 × 190 (h) cm max. · 55.9 × 23.6 × 74.8 in
Weight	79 kg · 174 lb
Structure	Lightweight metal frame on castors; three tiers of high-quality PVC growing channels
Capacity	Up to 100 plant sites
Reservoir	80 L (21 US gal) tank with pump · 650 × 450 × 280 mm (25.6 × 17.7 × 11.0 in)
Lighting	3 × LED grow bars, 40 W each, 90 cm
LED driver	DUSKTEC 24 V DC / 200 W (8.3 A), 220 V input, IP67 waterproof
Electrical panel	5 Schuko sockets; 1P+N C10 thermal-magnetic residual-current breaker, 230 V 50/60 Hz
Electrical safety	System built to CE safety standards with residual-current ("life-saver") protection
Basic — probe	3-in-1: pH (renewable fibre junction), amperometric EC/TDS, temperature with automatic compensation
Standard — sensors	NUL-204 light · NUL-205 oxygen · NUL-230 UVB · NUL-232 UVA · WIFI-202 · BAT-202
Advanced — fertigation	NIDO ONE V2: pH, EC, water/ambient temperature, humidity; automatic dosing; NIDO app + NIDO LAB
Software	Compatible with ATP Connect guided experiments and the Gali AI tutor
Consumables	Net pots, growing media, nutrient and pH solutions, calibration buffers — available from ATP
Ordering	EcoGrow Pro Basic · Standard · Advanced — upgrade kits available

100 plants
Three tiers, one classroom footprint

3 versions
Basic · Standard · Advanced

ATP Connect
Guided experiments & Gali AI tutor







Grow knowledge.
Beyond the classroom.

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