

HI 83225

# Nutrient Analysis Photometer

7 parameters for Greenhouses and Hydroponics

**ADP**  
Application Designed Photometers



Measures  
Ammonia, N, P, K  
Plus Calcium,  
Magnesium and  
Sulfate

## Extended Parameter Grow Master for Nutrient Analysis

HI 83225 is designed for the hydroponics and greenhouse industries to measure nutrients commonly present in fertilizer enriched solutions. This photometer measures ammonia, phosphorus, nitrate, potassium, calcium, magnesium and sulfate. Ammonia, phosphorus, nitrate and potassium can be measured in three distinct ranges of low, medium and high concentrations. This way accuracy is maximized for each nutrient and for every concentration.

Due to simplicity of operation, you no longer need to send off your samples and then wait for the results to come back. With the HI 83225, you can test the presence and strength of nutrients right on the spot. This can translate itself into a substantial saving and improved yield over a period of time. The internal microprocessor provides high accuracy and simplifies operations to the degree that even non-technical operators can use this meter.

This meter is supplied most accessories. Reagents are necessary and sold separately. All numbers listed are for 100 tests unless otherwise noted. HI 83225 runs on batteries as well as a 12 Vdc adapter and is supplied with both. An exclusive positive-locking system ensures that the cuvet is in the same position every time it is placed into the measurement cell. Display codes aid the user in routine operations. The meter has an auto-shut off feature, turning the unit off after 10 minutes of non-use.

Reagents are in liquid or powder form and are supplied in bottles or in packets. The amount of reagent is precisely dosed to ensure the maximum repeatability.

The HI 83225 can be connected to a personal computer via the HI 920010 RS 232 cable. The HI 92000 HANNA Windows® Compatible Software aids the user to manage all test data.

- Measures 7 parameters
- 3 ranges for ammonia, nitrate, phosphorus and potassium
- Economical tests
- Lightweight



HI 731318 — Cuvet Cleaning Cloth

## Plant Nutrition

The three elements that are most needed by plants are nitrogen (N), phosphorous (P) and potassium (K).

**Nitrogen** is indispensable for the plant's life and is a key factor in fertilization. Nitrogen allows the development of the vegetative activity of the plant, in particular, causes lengthening of trunks and sprouts and increases the production of foliage and fruits. An excess of nitrogen weakens the plants structure creating an unbalanced relationship between the leaves and the stalks. In addition, the plant becomes less resistant to diseases.

**Phosphorous** is an important element in the composition of DNA and RNA, the regulators of the energetic exchange (ATP & ADP), as well as the reserve substances in seeds and bulbs. It contributes to the formation of buds, roots, blooming, and lignification. A lack of phosphorous results in: stifling of plant, slow growth, a reduction of production, smaller fruits and a lower expansion of the roots.

Even if **Potassium** is not a constituent of important compounds, it plays a remarkable role in many physiological activities like the control of cellular turgor and the accumulation of carbohydrates. It increases the size of fruits, their flavor, as well as yielding a positive effect on the color and fragrance of flowers. Potassium also makes plants more resistant to disease.

TEST	RANGE	METHOD	REAGENTS
Ammonia LR	0.0 to 10.0 mg/L	Nessler	HI 93715-01 (100 tests) HI 93715-03 (300 tests)
Ammonia MR	0.0 to 50.0 mg/L	Nessler	HI 93715-01 (100 tests) HI 93715-03 (300 tests)
Ammonia HR	0 to 100 mg/L	Nessler	HI 93715-01 (100 tests) HI 93715-03 (300 tests)
Nitrate LR	0.0 to 30.0 mg/L	Cadmium Reduction	HI 93728-01 (100 tests) HI 93728-03 (300 tests)
Nitrate MR	0 to 150 mg/L	Cadmium Reduction	HI 93728-01 (100 tests) HI 93728-03 (300 tests)
Nitrate HR	0 to 300 mg/L	Cadmium Reduction	HI 93728-01 (100 tests) HI 93728-03 (300 tests)
Phosphorus LR	0.0 to 10.0 mg/L	Amino Acid	HI 93706-01 (100 tests) HI 93706-03 (300 tests)
Phosphorus MR	0.0 to 50.0 mg/L	Amino Acid	HI 93706-01 (100 tests) HI 93706-03 (300 tests)
Phosphorus HR	0 to 100 mg/L	Amino Acid	HI 93706-01 (100 tests) HI 93706-03 (300 tests)
Potassium LR	0.0 to 20.0 mg/L	Turbidimetric	HI 93750-01 (100 tests) HI 93750-03 (300 tests)
Potassium MR	10 to 100 mg/L	Turbidimetric	HI 93750-01 (100 tests) HI 93750-03 (300 tests)
Potassium HR	20 to 200 mg/L	Turbidimetric	HI 93750-01 (100 tests) HI 93750-03 (300 tests)
Calcium	0 to 400 mg/L	Oxalate	HI 937521-01 (50 tests) HI 937521-03 (150 tests)
Magnesium	0 to 150 mg/L	Calmagite	HI 937520-01 (50 tests) HI 937520-03 (150 tests)
Sulfate	0 to 150 mg/L	Turbidimetric	HI 93751-01 (100 tests) HI 93751-03 (300 tests)

### SPECIFICATIONS

Light Source	Tungsten lamps with narrow band interference filters at 420/525/610/466 nm
Light Detector	Silicon Photocells
Power Supply	(2) 9V battery or 12 Vdc adapter
Auto-off	after 10 minutes of non-use
Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
Dimensions	230x165x70 mm (9x6.5x2.8")
Weight	640 g (22.6 oz)

### ORDERING INFORMATION

**HI 83225-01** (115V) and **HI 83225-02** (230V) is supplied with measuring cuvetts (4), batteries, 12 Vdc adapter and instructions.

**HI 83225C-01** (115V) and **HI 83225C-02** (230V) kit includes accessories for HI 83225: rugged carrying case, 100 mL and 170 mL beaker, 60 mL and 5 mL syringes, 1 filter-holder and 25 filters, 100 mL cylinder, demineralizer bottle, 2 pipettes, 1.5 mL spoon and active carbon for 50 tests.

### REAGENTS

**HI 93706-01** 100 Phosphorus tests

**HI 93706-03** 300 Phosphorus tests

**HI 93715-01** 100 Ammonia tests

**HI 93715-03** 300 Ammonia tests

**HI 93728-01** 100 Nitrate tests

**HI 93728-03** 300 Nitrate tests

**HI 93750-01** 100 Potassium tests

**HI 93750-03** 300 Potassium tests

**HI 93751-01** 100 Sulfate tests

**HI 93751-03** 300 Sulfate tests

**HI 937520-01** 50 Magnesium tests

**HI 937520-03** 150 Magnesium tests

**HI 937521-01** 50 Calcium tests

**HI 937521-03** 150 Calcium tests

### SOLUTIONS

**HI 93703-50** Cuvet cleaning solution, 250 mL

### ACCESSORIES

**HI 740029P** 9V Batteries (10)

**HI 731318** Cuvet cleaning cloth (4)

**HI 731321** Glass cuvetts (4)

**HI 731325N** New cap for cuvet (4)

**HI 740034** Cap for 100 mL beaker (6)

**HI 740036** Plastic beaker, 100 mL (6)

**HI 740157** Plastic refilling pipette (20)

**HI 92000** Windows® Compatible Software

**HI 920010** PC connection cable

**HI 740223** 170 mL plastic beaker

**HI 740224** 170 mL plastic beakers (12)

**HI 740225** 60 mL graduated syringe

**HI 740226** 5 mL graduated syringe

**HI 740227** Filter assembly

**HI 740228** Filter discs (25)

**HI 740229** 100 mL Polypropylene cylinder

**HI 740230** Demineralized water, 250 mL

**HI 93703-54** Dried resin (100 g)

**HI 93703-55** Activated Carbon (50)