

## Highly Intelligent Soil Nutrient Detector

### AST-GT1



#### Features

(New generation intelligent type, built-in soil testing and fertilization formula function, map diagnosis, QR code printing, data upload, and all accessories used for testing, ensuring that users only need to provide pure water to complete the accurate determination of nitrogen, phosphorus, potassium, organic matter, pH and salt content!)

#### 1. Product introduction of multi-channel soil nutrient detector:

Complete supporting facilities: The instrument integrates medicine,

equipment and instrument, which is easy to carry and equivalent to a small mobile laboratory. It does not require users to prepare accessories and can also be flexibly tested in the field. It is suitable for agricultural service departments or agricultural material dealers, cooperatives, fertilizer manufacturers, and large growers to test soil and fertilize.

Full detection function: The test items are comprehensive at home and abroad. In addition to the standard reagents, other types of reagents can be added and purchased.

Easy to operate and fast, it is equipped with a complete set of accessories and finished reagents, which can be used out of the bottle without configuration.

#### 2. Multiple functions and complete test items:

\*Soil nutrients: soil ammonium nitrogen, soil available phosphorus, soil available potassium, soil nitrate nitrogen, soil hydrolyzed nitrogen, soil total nitrogen, soil total phosphorus, soil total potassium, soil organic matter (Qiu Lin method), soil organic matter (extraction method), soil total organic carbon, soil carbon-nitrogen ratio, pH value, salt content.

\*Trace elements in soil: soil calcium, soil magnesium, soil sulfur, soil silicon, soil boron, soil iron, soil copper, soil manganese, soil zinc, soil chlorine, soil molybdenum;

\*Soil heavy metals: soil chromium, soil arsenic, soil nickel, soil aluminum, soil fluorine, soil titanium, soil selenium.

### 3. Test efficiency:

Simultaneous extraction and determination of multiple nutrients such as quick-acting N, P, and K in the soil (drafter of the Ministry of Agriculture's quick test industry standard).

Test speed: Under normal proficiency, it takes 20 minutes to test three items of a soil sample (N, P, and K) (including the time for preparation of reagents and pre-treatment of soil samples),  $\leq 40$  minutes to test three soil samples (N, P, and K) at the same time, and  $\leq 1$  hour to test 8 soil samples at the same time.

### 4. Functional features:

1. This instrument integrates various functions in one, and does not require users to equip accessories by themselves, and can be flexibly tested.

2. Android smart operating system, the main control chip uses ARM Cortex-A7, RK3288/4-core processor, main frequency 1.88Ghz, faster operation speed and stronger stability.

3. 6 detection channels (solid-state design), can quickly detect 4 samples at a time, greatly improve detection efficiency and reduce detection costs.

4. Built-in calibration function during the detection process, intelligent constant current voltage regulation, automatic light intensity calibration to ensure detection accuracy.

5. Built-in crop expert fertilization system, can calculate the recommended fertilizer amount for the target yield of more than 100 kinds of national agricultural economic crops, fruit trees, etc., and scientifically guide agricultural production based on fertilization formula. The results of soil testing and fertilization formula can be printed, and the printed content includes: crop type, fertilizer type, target yield, total demand, and recommended fertilization plan.

6. The instrument has built-in large-capacity memory, which supports viewing all historical detection records and transmitting all detection data.

7. The instrument has both USB and Ethernet interfaces, and data can be copied out with a USB flash drive at any time.

8. Built-in plant nutrition diagnosis standard atlas, leaf comparison based on the pictures of nutritional deficiencies of various crops, diagnosis of abundance and deficiency.

9. 4-wavelength professional test cold light source (red, blue, green, orange), stable wavelength of light source, long-term continuous working light source without temperature drift, life up to 100,000 hours, good reproducibility, high accuracy.



10. The colorimetric cell uses a standard 1cm colorimetric dish, no mechanical displacement and wear, accurate positioning of optical path test, effective shielding of external light interference, and ensure that the test results are better than national standards.

11. The instrument system has a sample pre-treatment operation video. Click the video module to watch various sample detection methods. The test personnel do not need to self-study the manual. The guidance and teaching are convenient and fast, which is convenient for novices to operate quickly.

12. Built-in new generation high-speed thermal printer (no ribbon required), the printed content includes: testing unit, testing personnel, testing items, channel number, absorbance, nutrient content (mg/kg), testing time, and QR code and other information

13. Highly sensitive 7-inch true color touch screen, adopts more efficient and humanized operation, high-definition and high-interactive display, greatly reducing the cumbersome operation and errors of traditional instruments.

14. Built-in clock function, convenient operation time recording, long-term historical tracing.

15. Multiple account passwords can be set to log in, efficient UI interactive interface, different users can freely add and edit test information, and can

be used for a long time after saving.

16. Built-in low voltage prompt function, can clarify the power during detection to avoid test data deviation, and has power-off protection function, automatically saves data when power is off to prevent data loss.

17. AC and DC dual-use power supply mode, built-in large-capacity rechargeable lithium battery, can work continuously for more than 10 hours when fully charged, and can be connected to an external vehicle power supply for storage.

18. The instrument has Chinese and English switching function, which can meet export requirements.

19. High-strength PVC engineering plastic suitcase design, sturdy, durable and easy to carry.

#### Technical parameters:

1. Power supply: AC 220±22V, DC 12V+5V (built-in lithium battery can also be used as vehicle power supply)

2. Power: ≤5W

3. Range and resolution: 0.001-9999

4. Repeatability error: ≤0.03% (0.0003, potassium dichromate solution)

5. Instrument stability: No digital drift within one hour (transmittance measurement); digital drift within two hours does not exceed 0.3% (0.003,



transmittance measurement), 0.001 (absorbance measurement).

6. Linear error:  $\leq 0.1\%$  (0.001, copper sulfate detection)

7. Sensitivity: red light  $\geq 4.5 \times 10^{-5}$ , blue light  $\geq 3.17 \times 10^{-3}$ , green light  $\geq 2.35 \times 10^{-3}$ , orange light  $\geq 2.13 \times 10^{-3}$

8. Wavelength range: red light:  $680 \pm 2\text{nm}$ ; blue light:  $420 \pm 2\text{nm}$ ; green light:  $510 \pm 2\text{nm}$ ; orange light:  $590 \pm 4\text{nm}$

9. PH value (acidity and alkalinity): (1) Test range: 1~14 (2) Accuracy: 0.01 (3) Error:  $\pm 0.1$

10. Salt content (conductivity): (1) Test range: 0.01%~1.00% (2) Relative

error:  $\pm 5\%$

11. Soil moisture technical parameters Moisture unit: % (g/100g);

Moisture content test range: 0-100% ; Error less than 0.5%

12. Display resolution: 1024\*600

13. Earthquake resistance: IP65

14. Instrument size: 48×34.5×22cm

15. Main unit net weight: 5.2kg

### Configuration list

Instrument box			Medicine box		
Serial numbe	Name	Quantity	Serial numbe	Name	Quantity
1	Instrument	1 Unit	1	Medicine box	1 Unit
2	PH meter	1 Pcs	2	NPK organic reagent	1 Set

3	TDS meter	1 Pcs	3	Qualitative filter paper	1 Box
4	Electronic scale (100g/0.01g)	1 Unit	4	Cuvette	10 Box
5	Aluminum box	1 Pcs	5	Glass test tube	12 Pcs
6	Ear cleaning bulb	1 Pcs	6	Plastic test tube	20 Pcs
7	Glass stirring rod	1 Pcs	7	100ml triangular flask	2 Pcs
8	Glass pipette 1ml	1 Pcs	8	Reagent bottle	1 Pcs
9	Glass pipette 2ml	1 Pcs	9	50ml measuring cylinder	1 Pcs
10	Glass pipette 5ml	1 Pcs	10	Plastic dropper	12 Pcs
11	Glass pipette 10ml	1 Pcs	11	Test tube rack	1 Pcs
12	Printing paper	1 Pcs	12	Test tube brush	1 Pcs
13	Instruction manual	1 Pcs	13	Washing bottle	1 Pcs
14	Certificate of conformity/warranty card	1 Pcs	14	Weighing spoon	1 Set
			15	Power adapter	1 Unit





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