Dr.meter

4 in 1 Soil Survey Instrument

S40plus

Overview

4 in 1 soil survey instrument can test moisture, PH value, temperature and environment sunlight intensity of soil via using a probe with the length of 200mm. The unit can easily display various readings with oversize LCD.

The unit also has low battery indication and auto power off function. It is energy-saving and high efficiency. The unit assures quality of flowers and grasses planting and garden viresoance.

Tool Components

Light Sensor Window:
Can induct sunlight intensity of measured environment.

PH/TEMP key(back):
PH value, temperature or moisture.

Backlight LCD Display Screen

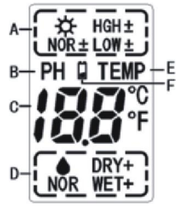
ON key:
Press the key to start the unit.

℃/℉ OFF key:
Temperature unit switch/power off:
under temperature mode, press the key to select temperature unit as ℃ or ℉(original temperature unit: ℃). Keep pressing the key for about 3 seconds to power off the device.

Test Probe:
Can test PH value, moisture and temperature.

Please taking the protecting bushing away when using the test probe. Put on the protecting bushing when it is not in use to protect the test probe (accessories).

Illustration of Display Screen



A. Sunlight intensity display area-----9 levels: LOW-, LOW, LOW+, NOR-, NOR, NOR+, HGH-, HGH, HGH+, each increasing in amount and quality. LOW- signifies an extremely dim environment. HGH+ signifies an extremely bright environment.

B. PH function display

C. PH or temperature value display-----It shows 4.0 to 9.0 for PH value and -9 to +50℃(16℉ to 122℉) for temperature."Lo" or "HH" indicates the value is out of the measurable range.

D. Moisture display area-----5 levels: DRY+, DRY, NOR, WET, WET+, each increasing in wetness. WET+ signifies an extremely wet environment while DRY+ signifies an extremely dry environment.

E. Temperature function display.

F. Low battery display-----The symbol will display on the LCD continuously when the battery is low.

How to Use

1 Sunlight Measurement

a Press the ON button to start the unit.
b Point the light sensor window towards max light source.
c The current light intensity will be showed on the LCD.

Tips:
Please do not obstruct or cast a shadow over the light sensor.

2 PH Value Measurement

a. Switch the PH/TRMP button on the back of the unit to PH position.
b. Push the probe down as vertically as possible into the soil which needed to be tested. Do not push the probe too near the stem to avoid damage to the plant's root.
c. Press ON button to start the unit.
d. PH value of the tested soil will be displayed on LCD.
e. Take several readings to confirm your findings.

Tips:

1. Insert the probe straight up and down, about halfway between the plant stem and the edge of the pot. For pots over 12" in diameter, position the probe about a third of the way between the stem and the edge of the pot. For a deep pot, insert the probe more deeply aiming for where the heaviest root concentration is likely to be.
2. Please softly push the probe into soil to avoid damage to the probe.
3. If the tested soil is extremely dry or too wet and can't be tested PH value, the user should sprinkle some water into the soil. Test again after half an hour.

3 Moisture Measurement

a. Switch the PH/TEMP button on the back of the unit to TEMP position.
b. Push the probe down as vertically as possible into the soil which needed to be tested. Do not push the probe too near the stem to avoid damage to the plant's root.
c. Press ON button to start the unit.
d. Moisture of the tested soil will be displayed on LCD.
e. Take several readings to confirm your findings.

Tips:

1. Insert the probe straight up and down, about halfway between the plant stem and the edge of the pot. For pots over 12" in diameter, position the probe about a third of the way between the stem and the edge of the pot. For a deep pot, insert the probe more deeply aiming for where the heaviest root concentration is likely to be.
2. Please softly push the probe into soil to avoid damage to the probe.

4 Temperature Measurement

a While testing moisture, the temperature of the soil will be displayed on LCD at the same time.
b Press ℃/℉ OFF button to set the unit of temperature is ℃ or ℉.

Tips:
If the user doesn't push the probe into soil, the current environment temperature will be displayed on the LCD.

Interpret Environment Sunlight Intensity Reading

Appropriate light does well in plant's growth (Some plants need more light than others).The unit has graduated the environment light and display according to intensity, which can offer reference for your plant's growth. Here is the list:

Increase in amount and quality of light								
LOW-	LOW	LOW+	NOR-	NOR	NOR+	HGH-	HGH	HGH+
very	low	much	slightly	normal	slightly	much	high	very

Interpret PH Value of the Soil

Extremely acid or alkaline is important factor for restricting plant's growth and feature. Most plants can't grow in the soil which is extremely acid or alkaline. By testing your soil, the user can choose plants with the correct PH or adjust PH more accurately, effectively and economically.

PH = 7 indicates a neutral soil
Below PH < 7------ acidic soil
Above PH >7------ alkaline soil

Here is the list of PH value of the soil compared with acidity and alkalinity:

Out of range out of range				
Increase in acidity		Neutral	Increase in alkalinity	
Lo	4.0～ 6.9	7.0	7.1～ 9.0	HH

Look up the PH reference list. If the PH reading is lower than the PH range for your plant, then you can add lime to increase PH. If the PH reading is higher than the PH reference range for your plant, then you can add chemicals and organics to reduce PH.

Tips:
Raising or lowering PH is not an exact science and most plants have a reasonably wide PH tolerance. A majority of plants can survive on a PH around 6.5, some need a particularly acid or alkaline soil.

Interpret Moisture of the Soil

Appropriate moisture does well in plant's growth. The unit has graduated the display into 5 levels, which can offer reference for your plant's growth. Here is the list:

Increase in wetness				
DRY+	DRY	NOR	WET	WET+
Very dry	dry	normal	wet	Very wet

If the reading is lower than that shown in the table, it's time to water your plants. If the reading is higher than that shown in the table, you do not need to water the plants.

Tips:

Check small pots more often than large ones---they dry out more quickly. Over watering rots the roots, so do not water too frequently. Out of season, most plants only need water once a week.

Operation Tips

- The unit will be automatically off after idle use for 5 minutes.
- The unit only can be used in soil, please don't place the probe into water or other solutions.
- Don't leave the probe in the soil longer than necessary to avoid the possible damage to the probe.
- Don't bend the probe.
- Don't use the probe to break up the soil.
- Be sure to keep the probe away from metal objects
- Keep the probe clean and dry before taking another test.
- Before testing, please lightly shine 4"-5" (10-12cm) of the probe and any oxides that may have formed on the surface of the metal. Insure that the probe is wiped clean and the protecting bushing is put on the test probe before storing in order to avoid the oxidation of the probe.

- When the unit is withdrawn from the soil, remember not to grasp the probe.

Troubleshooting

A Low battery:  icon displays on the LCD, please replace a new battery.

B Normally, it is 4.0 to 9.0 for the PH value and -9℃ to +50℃ for temperature measure of the soil. You'd better not measure things out of these range.

C Once stones or organic matter have touched the probe, please wipe again before test another place.

D There are other metal tablet have formed on the surface of the metal, please wipe it out.

DONTs

- Probe is too close to the side and/or the bottom of the pot.
- Haven't cleaned the probe before test.
- Sample area is too dry.
- The soil around the probe isn't even.
- Soil or potting soil is tested too soon after re-potting.
- There is houseplant fertilizer or tablet stick near the probe.
- Damaged probe.

Cautions

- Handle with care and do not let the unit drop down
- Do not disassemble the unit to avoid failure.
- Don't place the unit with the corrosive gases or objects.
- Avoid dust and water, which may stain the unit.
- Do not expose the unit in too high or too low temperature.
- Do not store the unit above 50℃
- Don't immerse the product into water, which will result in damage to the product.
- Clean the unit with soft fabric.
- Remove the battery when not in use for an extended period of time.

Technical Specifications

Name		4 in 1 Soil Survey Instrument
Test objects		Sunlight, moisture, PH value, temperature
Test range	Sunlight (9 levels)	LOW-, LOW, LOW+, NOR-, NOR, NOR+, HGH-, HGH, HGH+
	Moisture (5 levels)	DRY+, DRY, NOR, WET, WET+
	PH value (12 levels)	4.0~9.0(display resolution 0.1)
	Soil temperature	-9℃ ~ +50℃(16℉ ~ 122℉) (display resolution 1℃/1℉)
Automatic off		The unit will be automatically off after idle use for 5 minutes.
Backlight function		It will be automatically off after 1.5 minutes.
Power supply		One 9V block battery
Working current		< 30mA
Operating temperature		+5℃ ~ +40℃
Working humidity		5% ~95% RH non-condensing
Storage condition		-20 ℃ ~ +50℃, ≤85% (w/o battery)
Size	Main unit	122mm x 63mm x 36mm
	Test probe	φ5mm x 200mm
Weight		About 73g(battery is not included)

Warranty

The product is warranted to be free from defects in materials and workmanship for a period of one year from the purchase date. The warranty does not apply to the following conditions:

- Unauthorized disassembling the device will void the warranty.
- We are not responsible for any damage resulting from abrasion water, dropping or disassembling.

Tips:
Most parts of the product could be recycled, please refer to your local regulations for disposing of them instead of throwing into the dustbin.