SMT-100 Soil Moisture & Temperature Meter
User’s manual

Features:
The SMT-100 soil moisture & temperature meter is provided with high accuracy and high sensitivity. By measuring the dielectric constant of the reaction of soil we get the direct stable real moisture content. The SMT-100 soil moisture & temperature meter can measure the volume of soil moisture. The VMC soil moisture measurement method is in line with international standards. Applies to the soil moisture monitoring, scientific experiment, water-saving irrigation, greenhouse vegetables, flowers, grass, soil, plant cultivation, sports fields, golf courses, greenhouse control etc.

- High measuring accuracy, fast response, good interchangeability
- Good sealing performance, corrosion resistance, long term buried in soil use
- Flame retardant epoxy resin curing and completely waterproof
- Needle using quality materials can withstand long-term electrolysis, corrosion of acid and alkali in the soil
- Reliable performance, the effects of soil salt content is small, suitable for all kinds of soil
- Having battery reverse polarity protection

Specification:
1. Moisture range: 0.0 to 100.0% VMC
2. Temperature range: -40.0 ~ 80.0ºc
3. Measurement type: Volumetric soil water content
4. Accuracy: Temperature: ± 0.5ºc, Moisture: ± 3% (within 0-53%)
5. Measurement: Insert or buried
6. Pin length: Approx. 70mm
7. Average power consumption: <0.5mA

Button instruction:
1. Power Button. Install the batteries, connect the soil sensor probe then press power button to turn meter on. When you finish working press power button to turn meter off. If you forget to turn off, the meter will automatically shut down after 30 seconds.

2. Light button. Press this button to turn the LCD back light on or off.

3. Measure Button. Insert the soil sensor probe into the ground to be tested then press the measure button. “Measuring” will show on LCD for a few seconds then the values of moisture and temperature will be displayed.

The method of connecting the test probe:
(Be sure to turn the meter off before connecting or removing the probe)
Link: Insert the test probe plug into the socket at top of meter and tighten the nut to secure the plug. Pull out: Unscrew the nut to release and gently pull plug to remove (Do NOT pull on cable)
**Notes on inserting and use of the test probe:**

Rapid measurement method: select the measurement location, avoid rocks and hard ground, ensure that the needles will not touch stones and other hard objects, dig a hole removing the surface soil according to the required depth of measurement, maintain the same compactness of the original soil below the sensor body where measurements are to be taken, insert pins vertically into the soil and ensure close contact of plastic body with the soil. Measuring in a small volume should be done repeatedly and take the average result.

If the surface to be measured is hard, first make a hole in the surface large enough to fit the probe, maintaining the soil compaction and then insert into the softer or loose soil to take the measurement. Sensor should avoid violent vibration and shock or impact against hard objects. Because the sensor case is black, strong sunlight will make the sensor sharply warm up to over 50ºc, in order to prevent elevated and false temperature readings, please pay attention to sun protection in the field.

**Notes on use:**

Installation of SMT-100 sensor is very simple, the sensor must be fully inserted into the soil for best accurate results. At the same time it must be noted that the inappropriate choice of measuring points may lead to unpredictable measurement errors. Rough handling or forced installation will cause the sensor's stainless steel needles to break and could affect measurement accuracy.

Pay attention to the following aspects during installation:

Abnormal holes or pores: If there are holes or pores in the sensing range of the sensor it will cause measurement errors. Avoid to pull out and insert the test probe repeatedly in the same position.

Angle of installation: In different applications, sensors can have different installation methods i.e. horizontal and vertical installation. Distribution of moisture in the soil media is affected by space and time factors, reasonable installation of the sensor must be considered to maximize the elimination of these effects. When mounted vertically the soil moisture sensor measures the average value of nearly 6 cm long sensing range.

Sampling Point: Selecting sampling points must be carefully considered. In addition to the above two points, the impact of various other factors can also affect SMT-100 sensor measurement accuracy. It can be listed: density and changes in the composition of the soil, drainage status, gravel, plant roots, earthworms loosening effect of the soil, soil surface evaporation of water etc.

**Errors:**

If after pressing the Measure Button you see “Error” on the LCD, check that the plug is securely connected to the meter and that the soil sensor probe and cable are not damaged in any way.

Make sure that the batteries are in good condition, if the battery indicator on LCD is empty or low it will result in insufficient power to operate the sensor also showing “Error” message on LCD.