

# Soil Doctor- Smart Agriculture Monitoring for Soil 7 Elements, RS485 or USB for Android Mobile phone

## ES107-Soil-RS485/ ES107-Soil-USB

### Multi-Parameter Measurement

- Soil moisture content, conductivity, temperature, nitrogen (N), phosphorus(P), potassium(K), fertility, and pH value

### Fully Sealed, Durability, Widely Application

- Special treated alloy material for electrode, 316 stainless
- IP68 fully sealed, resistant to acid-alkali corrosion for long term dynamic detection in soil, or fully submerged in soil with water
- Low power consumption with 10-30V wide operating voltage
- 2-wire RS485 Modbus RTU communication
- USB-C interface for Android mobile system with APP

### Optional IoT Router and Cloud Platform - ThingsMaster

- NB-IoT / Cat.M1 Modbus RTU Gateway –SCB111-485
- LTE Cat.4/ Ethernet to Modbus RTU Gateway – WR222
- Remote cloud security and visual management
- Solar/ Battery Pack Support with SCB111-485



### Features & Benefits

#### Soil Measuring Parameters

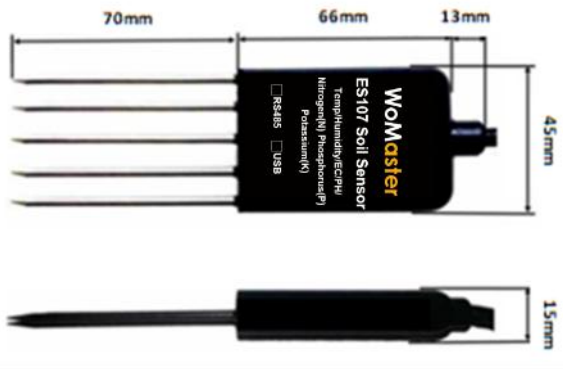
Electro-Conductivity (E.C.)	Measuring Range: 0~20000u.Sec. /cm Resolution: 1uSec./cm Accuracy: $\pm 3\%$ (0~10000uS/cm at Full. Scale.) $\pm 5\%$ (10000~20000uS/cm at Full Scale) Temperature compensation: 0~50°C
Soil Moisture	Measuring Range:0~100% Resolution: 0.1% Accuracy: $\pm 2\%$ (moisture between 0~50%) $\pm 3\%$ (moisture between 50~100%) (Brown Soil, 60% Humidity, 25°C soil temperature.)
Soil Temperature	Measuring Range: -40~80°C Resolution: 0.1°C Accuracy: $\pm 0.5^\circ\text{C}$ at 25 °C
Soil acidity/ alkalinity (pH)	Measuring Range: 3~10pH Resolution: 0.1 Accuracy: $\pm 0.3\text{pH}$
Nitrogen, Phosphorus and Potassium	Measuring Range: 1~1999 mg/kg (mg/Litre) Resolution: 1mg/kg (mg/Litre) Accuracy: $\pm 2\%$ at Full Scale

#### System operating specification

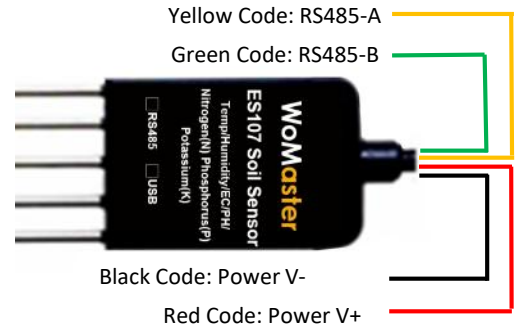
Operating Power	RS485:12/24V (Typical), rating 10~30Vdc; USB:5V Power consumption: 0.5W at DC24V
Operating Temperature	-40°C~85°C; 0~80%RH; Kernel processor up to 85°C
Physical parameters	Electrode Probe length: 70 mm ; Probe diameter 3mm Sealing material: Epoxy resin (Black flame retardant) Cable length: standard two meters (RVV 4 * 0.3) Protection class: IP68
Dimension (mm.)	45x15x149 (electrode included)

## Dimension, Wiring

### Dimension with Electrode



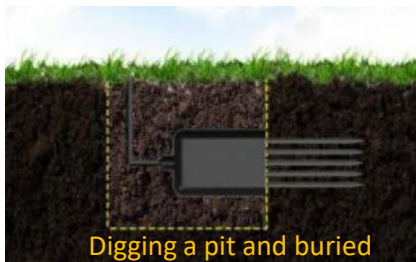
### Cable wiring code



### Farmland measurement installation, Android System

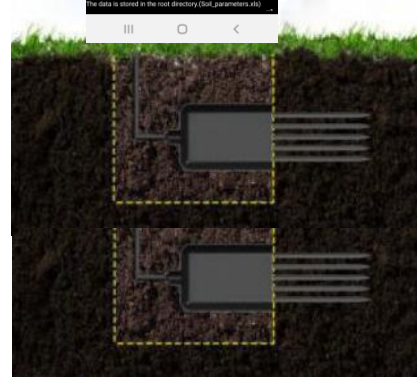
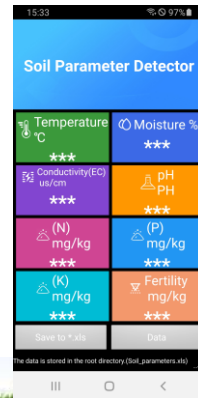


Vertical Insertion method



Digging a pit and buried  
Buried method

### Android System ver.10



Multi-layer Soil measuring  
Buried method

## Integrated with IoT Gateway

