CWT Soil sensor manual

TH-A (analog type)

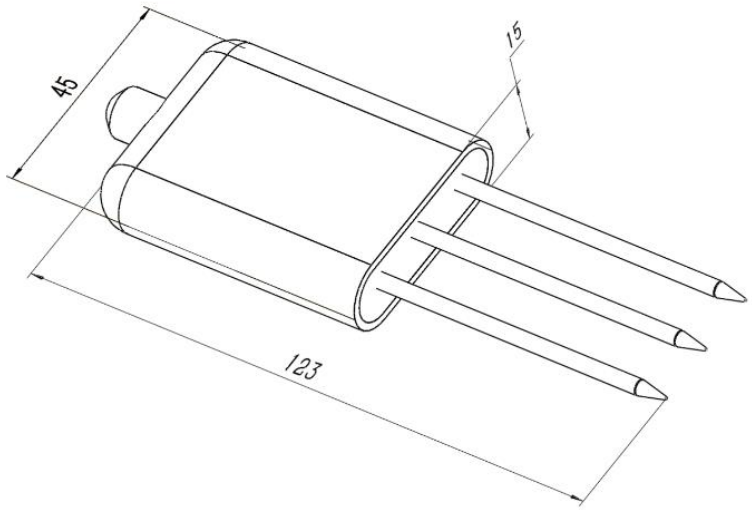
Soil parameters measuring

Temperature	• Measuring range: -40℃-80℃ • Accuracy: ±5℃ (25℃) • Long-term stability: ≤0.1%℃/y • Response time: ≤15s
Humidity	• Measuring range: 0-100%RH • Accuracy: 2% within 0-50%, 3% within 50-100% • Long-term stability: ≤1%RH/y • Response time: ≤4s

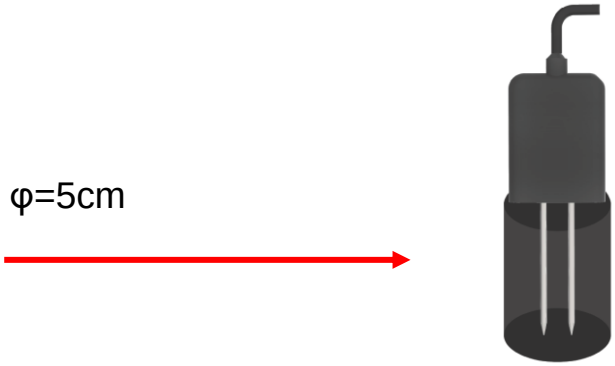
Basic parameters

Power supply	4-20mA/0-5V type: DC10-30V 0-10V output type: DC18-30V
Max Power consumption	4-20mA type: 0.4W (12V power supply) 0-5V type: 0.3W (12V power supply)
Protection class	IP68, long-term immersion in water use
Cable length	2M
Operating environment	-40℃-80℃
Overall dimensions	45 * 15 * 123mm
Output signal	Current output: 4-20mA
	Voltage output: 0-5V/0-10V
Load capacity	Current output: ≤600Ω
	Voltage output: resistance ≤250Ω

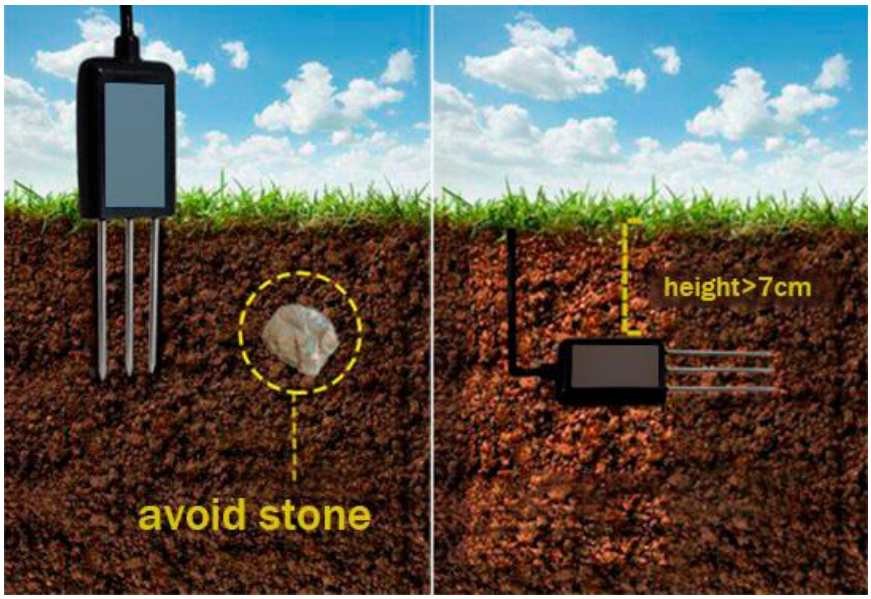
Size



Measuring range



Installation



Wiring

Cable color	description
Brown	Power + (DC10-30V)
black	GND
yellow	Moisture signal output
blue	Temperature signal output

Moisture calculation

Moisture range is 0-100%RH
4-20mA output:
formula:
measuring value=(Pmax-Pmin)/(20-4)*(current value-4mA)

0-5V output:
formula:
measuring value=(Pmax-Pmin)/(5-0)*current value

0-10V output:
formula:
measuring value=(Pmax-Pmin)/(10-0)*current value

E.g., moisture current value is 12mA.
measuring moisture value=(100/16)*(12-4)=50

Temperature calculation

Temperature measuring range is -40℃-80℃
4-20mA output:
formula:
measuring value=((Pmax-Pmin)/(20-4)*(current value-4mA))-40

0-5V output:
formula:
measuring value=((Pmax-Pmin)/(5-0)*current value)-40

0-10V output:
formula:
measuring value=((Pmax-Pmin)/(10-0)*current value)-40

E.g., temperature current value is 12mA.
measuring temperature value=((120/16)*(12-4))-40=20