



EP520-02 Soil Moisture, Temperature & EC Sensor

Thanh Dong Invest & Trading Co.,Ltd

Add:No 22/A22 Geleximco, Le Trong Tan, An Khanh,Hoai Duc, Ha

Noi, Vietnam

T:+84-22187052

E: info@thanhdongcorp.com

W: www.ep-monitor.com

1

EP520-02 Soil Moisture, Temperature & EC Sensor is integrated the moisture,temperature & EC measurement.The stainless steel probe is inserted into soil surface or soil profile to test quickly. The product with temperature compensation to ensure the accuracy of measurement.The probe can be permanently embedded underground and be connected to a data logger for unlimited testing.

FEATURES

- High accuracy
- Connect directly to data collector or instrument
- Fully sealed structure
- Placed in any depth underground(5000mm,max.)
- Low power design
- Easy Installation

2

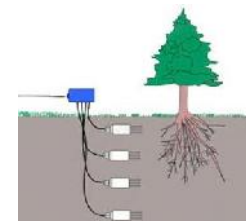
SPECIFICATIONS

Item	Technical Specification		
	Moisture	Temperature	EC
Range	0-100% (m3/m3) 0-50% (m3/m3)	-30 →+70	0-20mS/cm(RS485) 0-10mS/cm(0-2V)
Accuracy	±2%(0-50%) ±3%(51-100%)	±0.5	±3%FS(0-10mS/cm) ±5%FS(11-20mS/cm)
Output Signal	RS485,0-2V		
Response Time	<1s		
Supply	5VDC, 12-24VDC		
Effective measurement	With the center of the probe diameter is 70mm, high 70mm cylinder		
Housing	ABS		
Dimensions	71*45*16mm(probe:3* Ø3*70mm)		
Operating Temperature	-40 →+80		
Ingress Protection	IP68		
Storage	10-60 @20%-90%RH		
Probe material	316L stainless steel		

3


MOUNTING


1. Testing medium should be with uniform intensity.
2. If surface soil water content measurement, the sensor should be insert into soil vertically. Do not shake the sensor when inserted, otherwise the probe will be blended;
3. If multi-layer soil water content measurement, the sensor should be buried in the soil and parallel to the ground. Make sure the probe not be blended;
4. When removing sensors from the soil, please hold the sensor housing shell and do not forcibly pull on the cable. Soil on probes should be brushed tightly.
5. Please keep the sensor in dry & clean conditions.



4

ELECTRICAL CONNECTIONS

Connector (cable)	0-2V	RS485
Red	V+	V+
Black	V-	V-
Blue	Signal_GND	
Green	Humi.	RS485A
Orange	Temp.	
Yellow	EC	RS485B
White		Setting 

 When Setting line **connected to the V+**, the sensor enter setup mode; normal output data, ~~the~~ White line should be **connected to V- or no connected**.
Note: This product has been tested and complies with European CE requirements for EMC directive.

WARRANTY

This product is warranted to be free of defects in materials and construction for a period of 12 months from date of lead time.
Liability is limited to repair or replacement of defective item.

PARAMETER SELECTION TABLE

Remark	Series	Type	Supply	Output	Cable Length	
EP						
	520					
		02				
			A			5V
			B			12-24V
			X			Other
				A		0-2V(0-10mS/cm)
				B		RS485(0-20mS/cm)
				X		Other
					2000	Units:mm (typ)
					...	Units:mm

Example: EP520-02BA2000 Supply: 12-24V, Output:0-2V,Cable Length:2m.

Communication Protocol (MODBUS)

Transmission mode: MODBUS-RTU,Baud rate: 9600bps,Data bits:8,Stop bit:1,Check bit:no
Slave address:the factory default is FEH (set according to the need,01H to FFH)

- The 03H Function Code Example: Read The Temperature, Moisture & EC(Setting terminal (Whtie) connected to V-)

Host Scan Order(slave address:0xFE)

FE 03 00 00 00 03 11C4

Slave Response

FE 03 06 0E 93 08 90 02 4E 62AB

Moisture:(0E93)H=(3731)D,3731/100=37.31%

Temperature:(0890)H<0x8000, (0890)H=(2192)D,2192/100=21.92

If the data $\geq 0x8000$, for example:0xFF05,according to the following method to calculate :
 $0xFF05-0xFFFF-0x01=(65285)D-(65535)D-(1)D=(-251)D,-251/100=-2.51()$
EC:(024E)H=(590)D=590/1000=0.59mS/cm

- The 06H Function Code Example: Modify the slave address(After the restart sensor changes to take effect)

Host Scan Order (Changed to 01H):

FF 06 02 00 00 01 5C6C

Slave Response:

FF 06 02 00 00 01 5C6C


If you forget the address,you can use the set mode to change address,On set mode (Setting terminal (Whtie) connected to V+) ,the sensor address is FFH. (ensure that no other devices on the bus at this time,after the restart sensor changes to take effect).

Note:

1. All underlined is fixed bit;
2. The last two bytes is CRC check command.

WARRANTY

This product is warranted to be free of defects in materials and construction for a period of 12 months from date of lead time.Liability is limited to repair or replacement of defective item.

 Complies with applicable CE directives.

Manual subject to change without notice. Version 1.0

Copyright © 2018 Thanh Dong Invest & Trading Co.,Ltd