SOIL PH SENSOR

RY-CXW300

MANUAL

FEATURES

RY-CXW300 soil pH sensor solves the shortcomings of traditional soil pH, such as requiring professional display instrument, cumbersome calibration, difficult integration, high power consumption, expensive price, and difficult carrying.

◆ Real-time online monitoring of soil pH;
◆ The most advanced solid dielectric and large area PTFE liquid interface, not easy to block and maintenance free;
◆ High integration, small size, low power consumption, easy to carry;
◆ Low cost, low price and high performance;
◆ High integration, long service life, convenience and high reliability;
◆ Easy to operate and realize remote one key calibration;
◆ Support secondary development;
◆ The electrode adopts high-quality low-noise cable, which can make the signal

output length more than 20 meters without interference.
The product can be widely used in agricultural irrigation, flower gardening, grassland and pasture, soil rapid testing, plant culture, scientific test and other fields.

COMMUNICATION PROTOCOL

1、Communication specification

9600,N,8,1

2、Write station number

Command format: Device address Function code Start register address No. of registers Data length Data CRC check

00 10 0001 0001 02 00xx CRCloCRChi（XX=0X01-0XFF）

Respond format: Device address Function code Start register address No. of registers CRC check

00 10 0001 0001 CRCloCRChi

Example： Command 00 10 00 01 00 01 02 00 33 EA 04

Respond 00 10 00 01 00 01 51 D8

3、Read station number command (fixed command)

Command format: Device address Function code Start register address No. of registers CRC check

00 03 0001 0001 CRCloCRChi

Respond format: Device address Function code Data length Data CRC check

00 03 02 00xx CRCloCRChi（XX=01-ff）

Example： Command 00 03 00 01 00 01 D4 1B

Respond 00 03 02 00 FF C5 C4

4、Read data command

Host send command format：

Device address Function code Start register address No. of registers CRC check

xx 03 0000 0001 CRCloCRChi

host send command format：

Device address Function code Data length Data CRC check

xx 03 02 00yy CRCloCRChi

Example：

Command FF 03 00 00 00 01 91 D4

Respond FF 03 02 02 B0 91 44

Note：ph 大小=02 B0= 688/**100 =6.88**

TECHNICAL SPECIFICATION

Supply: DC12V

Probe component: PH electrode

- ●Measuring range: 0～14 PH
- ●Resolution: 0.01
- ●Accuracy: ±0.2（test temperature 25℃）
- ●Stability: Less than 1% of sensor life
- ●Response time: less 10 s(in water)
- ●Preheating time: 30S
- ●Working Current：DC12V <60ma(Voltage；Current)；DC12V <75ma(485)
- ●Power Consumption：DC12V <0.72W(Voltage；Current)；DC12V <0.9W (485)
- ● Service life: 1 year for normal environment, no guarantee for high pollution environment
- ●Sealing material：ABS
- ●Work environment：Temperature-30～70℃、
- ●Storage : -40~60℃
- ●Standard line length：2.5m
- ●Farthest lead wire：Current200m、 RS485 100 m、voltage 50m
- ●Ingress Protection: IP65

Analog output:

RY-CXW300	RY-CXW300/S	RY-CXW300/485
1-5V	4-20mA	RS485modbus

WIRING METHOD

	Output		
	1~5V	4~20mA	RS485
Red	Positive pole	Positive pole	Positive pole
Black	Negative pole	Negative pole	Negative pole
Yellow	voltage signal	current signal	485+
Blue			485-

INSTRUCTIONS

1. When the sensor leaves the factory, there is a transparent protective cover at the probe position, and the built-in protective liquid protects the probe. When using, please remove the protective cover at first, fix the filter tank and the sensor, then use the attached cable tie to wrap the filter in the filter tank. To prevent direct contact between the soil and the probe and damage the probe. In actual use, please ensure that the filter trough and the filter are firmly connected. Do not remove the filter trough and the filter. Insert the probe directly into the soil to prevent the probe from being repairable Damage

2. Insert the probe part vertically into the soil, and the depth of insertion must at least cover the filter screen. Under normal circumstances, the pH value in the air is between 6.2 ~ 7.8;

3、 After burying the sensor, pour a certain amount of water around the soil to be measured, wait a few minutes, and wait for the water to soak into the probe, then you can read the data on the instrument. Under normal circumstances, the soil is neutral and the pH value is between Around 7, the actual pH value of the soil in different places will be different, it should be determined according to the actual situation;

PRECAUTIONS

1、The electrode lead is a special 4-core shielded wire, and customers are prohibited from splicing the lead without permission, and will not be responsible for the consequences;

2. Avoid long-term immersion in distilled water or protein solution, and prevent contact with silicone grease;

3. If the electrode is used for a long time, his glass film may become transparent or have deposits. At this time, it can be washed with dilute hydrochloric acid and rinsed with water;

4. When you do maintenance on the electrode, you still cannot do the calibration procedure and normal measurement, which indicates that the electrode can no longer respond, please replace the electrode

5. The PH electrode wire is not waterproof. Try to prevent the electrode wire from contacting water.

6. The life of the electrode is one year under normal use. Due to the harsh environment, improper maintenance of the goods will shorten it.

Use and maintenance

1. There is an appropriate amount of 3.3mol / L KCl solution in the protective cover at the front of the electrode, and the electrode tip is soaked to keep the glass bulb and liquid junction activated

2. When the electrode is used, it is necessary to remove the transparent protective cover at the front end and immerse the glass bulb and the liquid junction in the solution;

3. Before installation, be sure to use raw material tape (3/4 thread) for waterproof sealing work to prevent water from entering the PH electrode and causing short circuit of the PH electrode cable.

4. When measuring, it should be washed in distilled water (or deionized water), and dried with filter paper to prevent impurities from entering the electrode bulb in the test solution.The liquid junction should be completely immersed in the test liquid;

5. Check if the terminals are dry. If there is any contamination, please wipe with dry alcohol and blow dry before use;

6.users regularly clean the glass bulbs and liquid junctions in front of the electrodes, and regularly coordinate with the instrument for calibration;

7. The electrode should be washed when not in use and inserted into a protective cover with a saturated potassium chloride solution.

WARRANTY & SERVICE

Warranty commitment: the warranty period is 12 months from the delivery period (except for the product problems caused by the failure to operate according to the corresponding technical requirements or other human behaviors).

After sales commitment: users can consult relevant technical problems by phone and get clear solutions. If it is a quality problem, it can be returned to the factory for maintenance or replacement.

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