

RK300-04 Leaf Wetness Sensor

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RK300-04 Leaf Wetness Sensor is an important tool for observing and studying leaf wetness, preventing pests and diseases, and spraying sprinkler control. The accurate measurement of the moisture content of the leaf surface can be used to monitor the trace moisture or ice crystal residue. The shape of the sensor is simulated by the blade, which can simulate the characteristics of the leaf surface, so that it can reflect the situation of the leaf surface more accurately. By measuring the variation of the dielectric constant of the upper surface of the blade, the mist, water vapor and ice can be measured.

FEATURES

- Reflect the water content of leaf
- Fog, freezing, condensation and rainfall can be detected
- Good waterproof sealing performance
- High precision, fast response, reliable performance.
- Multiple signal output options

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SPECIFICATIONS

Item	Technical Specification	
	Wetness	Temperature
Range	0-100%	-40-+80℃
Accuracy	±3%(0-50%),±5%(>50%)	±0.5℃ (-10℃~50℃)
Principle	Capacitance	Thermal resistance
Repeatability	<±3%FS	
Temperature Drift	≤0.2%FS/℃	
Supply	Mark on the label	
Output	4-20mA,0-5V,0-2V,RS485	
IP Rating	IP67	
Operating Temperature	-40℃-+80℃	
Dimension	65*13*145mm	
Storage	-40-80℃@20%-90%RH	

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OUTPUT CHARACTERISTICS

● Current

$H = (I - 4) / 16 * 100\%$, ((where H = humidity(RH), I = output current(mA)))

● Voltage

$H = V / V_{full\ scale} * 100\%$, (where H = humidity(RH), V= output voltage(V), $V_{full\ scale}$ = 5V or 10V)

● RS485

If the transmission distance is over 100m, please add a 120Ω terminal matching resistances on the front end and back end of bus interface respectively. Attach communication protocol.

MOUNTING

- When installation with texture side up.
- When installing the sensor to simulate the face of the grid part of the face, roughly the same angle with the surrounding surface and the ground.
- Such as foliar fertilization spray testing, can be installed in the plant height of different height, to ensure that the plant close to the ground effect of foliar fertilization.

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ELECTRICAL CONNECTIONS

RS485 Output:

Cable	Current	Voltage	RS485
Red	V+	V+	V+
Green			RS485A
Black	V-	V-	V-
Yellow	Signal	Signal	RS485B
White			Setting①

① When white line **connected to the V+**,the sensor enter setup mode;normal output data, the white line should be **connected to V-**.

Note: This product has been tested and complies with European CE requirements for EMC directive.

PARAMETER SELECTION TABLE

Remark	Series	Type	Supply	Output	Cable Length	
RK						
	300					
		04				
			A			5VDC
			B			12-24VDC
			X			Other
				A		4-20mA
				B		0-5V
				C		0-2V
				D		RS485
				X		Other
					3000	Units:mm
					...	Units:mm

Example: RK300-04BA1500 Supply: 12-24VDC, Output:4-20mA, Cable Length:1.5m.

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,00H to FEH)

- The 03H Function Code Example: Read The Wetness and Temperature(Setting terminal (White) connected to V-)

Host Scan Order(slave address:0xFE)

FE 03 00 00 00 02 D004

Slave Response

FE 03 04 00 15 00 FE 6578

Wetness:(0015)H=(21)D,21/10=2.1%

Temperature:(00FE)H=(254)D,254/10=25.4℃

- The 06H Function Code Example: Modify the slave address

Host Scan Order (Changed to 01H):(Setting terminal (White) connected to V+)

FF 06 02 00 00 01 5C6C

Slave Response:

FF 06 02 00 00 01 5C6C

On set mode ,the sensor address is FFH. (ensure that no other devices on the bus at this time).


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

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