

RK120-07 Ultrasonic Wind Speed & Direction Sensor

Hunan Rika Electronic Tech Co.,Ltd

Add: 401, 1st Unit, 10th Bd, International Enterprise Center, No.268 Xinxing Rd, Yuhua Dist, C hangsha, 410116 Hunan, China.

T:+86-731-85132979

E:info@rikasensor.com

W:www.rikasensor.com

RK120-07 The wind speed and direction meter are a kind of measuring instrument which uses the time difference of ultrasonic wave in the air to measure the wind speed and direction. RK120-07 uses low-power chip with power consumption of only 0.2W, which is especially suitable for solar or battery powered environment with high power consumption requirements. Due to the adoption of new technology and new process, the structure is more compact and compact. Optional temperature and air pressure module.

FEATURES

- Adapt to complex weather conditions
- No moving parts, long service life
- The surface preservative treatment
- Strong anti-interference
- High accuracy

Parts:

1. Wind speed & direction sensor: 1
2. Cable:1

SPECIFICATIONS

Item	Technical Specification		
Power Supply	12-24VDC		
Power consumption	1.7W		
Output Signal	4-20mA①,RS232/RS485(Modbus or NMEA-183), SDI-12		
Operating Temperature	-30℃~+60℃		
Ingress Protection	IP65		
Dimension	Φ 82*108mm		
Weight(unpacked)	0.8kg		
Main material	ABS		
Item	Technical Specification		
	Range	Resolution	Accuracy
Wind speed	0-40m/s	0.1m/s	± 3%
Wind direction	0-360°	1°	± 3°
Starting Threshold	0.1m/s	0.1m/s	
Extreme Wind Speed	60m/s		

MOUNTING

- There is rotary adjustable mounting holes at the top of the sensor,when mounting the sensor, to ensure the indicator on ultrasonic wind sensor on the sensor **comply with the geographic north;**
- The product upward or downward vertical ground installation.

OUTPUT CHARACTERISTICS

- **Current(4-20mA)**

Characteristic transfer function: $V(m/s)=(I_s-4)/(20-4)*Range;$
 $A(^{\circ})=(I_d-4)/(20-4)*360(Range:0-360^{\circ})$

(V: wind speed ,I_s:wind speed current(mA),A:wind direction,I_d:wind direction current(mA))

- **Voltage**

Characteristic transfer function:
 $V(m/s)=U_s/(\text{ full scale voltage-zero point voltage})*Range;$
 $A(^{\circ})=U_d/(\text{ full scale voltage-zero point voltage})*360(Range:0-360^{\circ})$

(V: wind speed ,U_s:wind speed voltage(V),A:wind direction,U_d:wind direction voltage(V))

- **RS485**

See appendix for communication protocol.

PARAMETER SELECTION TABLE

Remark	Series	Type	Parameter	Supply	Output	Cable length	
RK							
	120						
		07					
			A				With atmospheric pressure
			X				Other
				A			12-24V
				X			Other
					A		4-20mA
					B		
					C		RS485(Modbus)
					D		RS485(NMEA-183)
					E		RS232(Modbus)
					F		RS232(NMEA-183)
					G		SDI-12
						4000	4m default
						10000	10m
						...	

Example: RK120-07AAA4000 Without compass & atmospheric pressure, Supply:12-24V, Output:4-20mA, Cable length:4m

ELECTRICAL CONNECTIONS

Cable	Voltage/Current	RS485	RS232
Red(Pin1)	V	V+	V+
Black/Blue(Pin2)	V-	V-	V-
Yellow(Pin3)		RS485A	RXD
Green (Pin4)		RS485B	TXD
Gray	Signal+(WD)		
Black	Signal-(WD)		
White	Signal+(WS)		
Brown	Signal-(WS)		

Communication Protocol (MODBUS)

Transmission mode: MODBUS-RTU, Baud rate: 9600bps, Data bits:8, Stop bit:1, Check bit: EVEN Slave address: the factory default is 01H (set according to the need, 00H to FFH)

- The 03H Function Code Example: Read The Wind speed & Wind direction

Host Scan Order(slave address:0x01)

01 03 00 00 00 04 44 09

Slave Response

01 03 08 0002 0126 80AD 4003 77E1

Wind direction:(0126)H=(54)D=294(°)

Wind speed:0x400380AD>>2.05(m/s);

- Note:
- All underlined is fixed bit;
 - The last two bytes is CRC check command;
 - If you changed the address, restart the device to take effect.



Complies with applicable CE directives. Manual subject to change without notice. Version 1.0, Copyright © 2015 Hunan Rika Electronic Tech Co., Ltd