

RK100-01 Wind Speed Sensor



The RK100-01 Wind Speed Sensor is specifically designed to accurately and reliably measure wind velocity under the adverse environmental conditions. Digital circuits capable of strong RFI & EMI resistance and automatic temperature compensation are build-in, it outputs voltage and current signals by electromagnetic induction, the value and horizontal wind speed are linear relation. Shell is made of high-strength aluminum alloy, the wind cup is made of 304 stainless steel, the PCB board is painted with anti-corrosion coating, featured with water proof, corrosion resisting. Inside and turning position have sealing rings with nice sealing function, stop water, salt fog and dust getting in. The RK100-01 Wind speed sensor has good performance in harsh environment.

FEATURES

- Low starting threshold
- Massive all-metal construction
- Strong corrosion resistant ability
- Stainless steel Wind cup, anti-wind load until 70m/s
- Double bearing design
- Surge protection design
- Easy Installation



APPLICATIONS

- Weather monitoring stations
- Safety monitoring of high altitude equipment
- Ports
- Solar and wind power generation
- Mobile weather monitoring vehicles
- Marine vessels
- Remote airports & helipads
- Road & rail tunnels

SPECIFICATIONS

Output	Pulses	4-20mA	RS485	0-2V/0-5V/0-10V
Supply Voltage	5-24VDC	12-24VDC	12-24VDC	12-24VDC
Load Capacity	>2kΩ	<500Ω(typ 250Ω)		>2kΩ
Range	0-30m/s, 0-60m/s			
Accuracy	± (0.3+0.03V) m/s			
Response time	<1s			
Starting Threshold	<0.3m/s			
Limit wind speed	70m/s			
Ingress Protection	IP65			
Operating Temperature	-30°C~+70°C			
Weight(unpacked)	240g			

Dimension	Cup rotor:ø220mm,Height:175mm
Main material	Cup:304stainless steel, Main Body:Aluminum alloy
Finish	Polyester powder electrostatic spraying(black)
Storage Condition	10°C-60°C@20%-90%RH

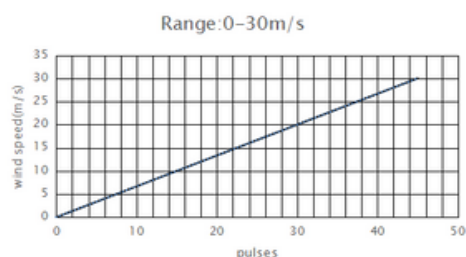
OUTPUT CHARACTERISTICS

Pulses

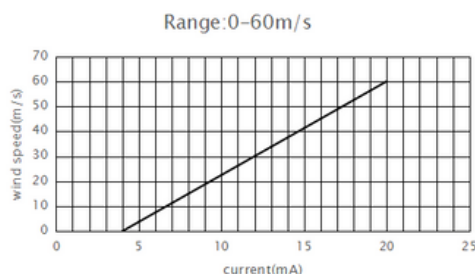
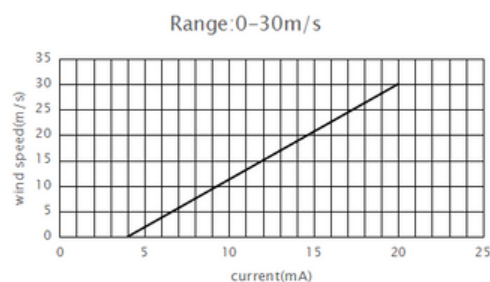
Characteristic transfer function:

$$V=0.667 \cdot F$$

(where V = wind speed (m/s), F = output frequency(Hz))



Current



Voltage

Characteristic transfer function:

$$V=U/(\text{full scale voltage-zero point voltage}) \cdot 30 (\text{Range:0-30m/s}),$$

$$V=U/(\text{full scale voltage-zero point voltage}) \cdot 60 (\text{Range:0-60m/s}).$$

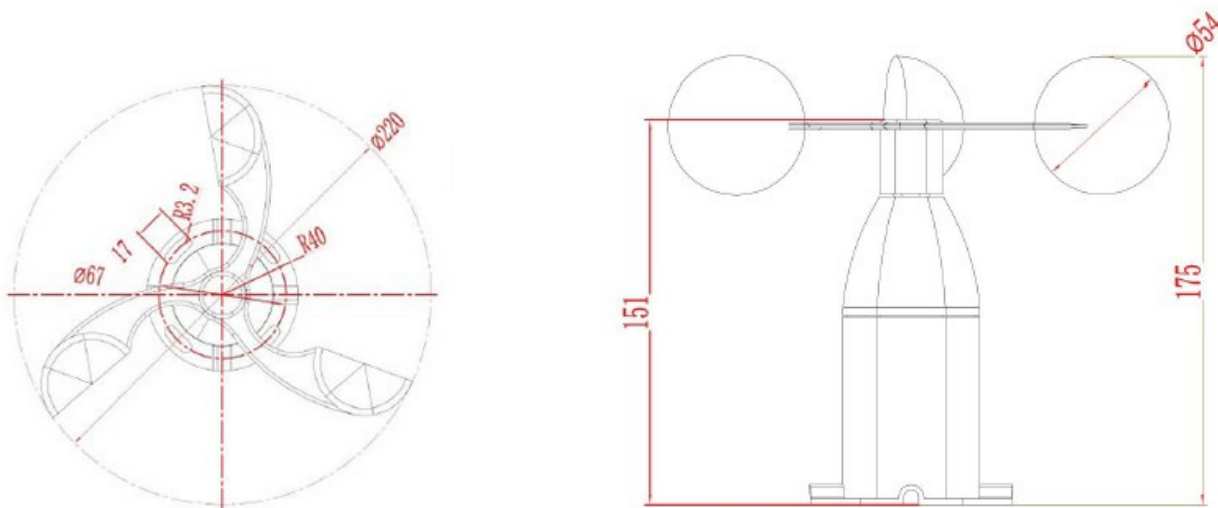
(where V = wind speed (m/s), U = output voltage(V))

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. See the modbus communication protocol specification.

DIMENSION & MOUNTING

Flange mounted, fix four screws on the bracket and keep the product horizontal.



PARAMETER SELECTION TABLE

Remark	Series	Type	Output	Range ¹⁾	Cable Length	
RK						
	100					
		01				
			A			4-20mA
			B			0-5V
			C			0-10V
			D			Pulses
			E			RS485
			X			Other
				A		0-30m/s(recommended)
				B		0-60m/s
					1500	Units:mm (typ)
					3000	Units:mm
					...	Units:mm

1) It is recommended to use 0-30m/s range, which can get a better measurement accuracy. More than 30m/s wind is rare on mainland;

The default power supply voltage is 12-24VDC, if you have other requirements please confirm when ordering.

Example: RK100-01AA1500 Output:4-20mA, Range:0-30m/s, Cable Length:1.5m.

Appendix: wind speed-wind scale table

Scale	Speed			Name	Conditions at Sea	Conditions on Land
	knots	km/h	m/s			
0	< 1	< 2	0-0.2	Calm	Sea like a mirror.	Smoke rises vertically.
1	1-3	1-5	0.3-1.5	Light air	Ripples only.	Smoke drifts and leaves rustle.
2	4-6	6-11	1.6-3.3	Light breeze	Small wavelets (0.2 m). Crests have a glassy appearance.	Wind felt on face.
3	7-10	12-19	3.4-5.4	Gentle breeze	Large wavelets (0.6 m), crests begin to break.	Flags extended, leaves move.
4	11-16	20-29	5.5-7.9	Moderate breeze	Small waves (1 m), some whitecaps.	Dust and small branches move.
5	17-21	30-39	8-10.7	Fresh breeze	Moderate waves (1.8 m), many whitecaps.	Small trees begin to sway.
6	22-27	40-50	10.8-13.8	Strong breeze	Large waves (3 m), probably some spray.	Large branches move, wires whistle, umbrellas are difficult to control.
7	28-33	51-61	13.9-17.1	Near gale	Mounting sea (4 m) with foam blown in streaks downwind.	Whole trees in motion, inconvenience in walking.
8	34-40	62-74	17.2-20.7	Gale	Moderately high waves (5.5 m), crests break into spindrift.	Difficult to walk against wind. Twigs and small branches blown off trees.
9	41-47	76-87	20.8-24.4	Strong gale	High waves (7 m), dense foam, visibility affected.	Minor structural damage may occur (shingles blown off roofs).
10	48-55	88-102	24.5-28.4	Storm	Very high waves (9 m), heavy sea roll, visibility impaired. Surface generally white.	Trees uprooted, structural damage likely.
11	56-63	103-118	28.5-32.6	Violent storm	Exceptionally high waves (11 m), visibility poor.	Widespread damage to structures.
12	64-71	119-133	32.7-36.9	Hurricane	14 m waves, air filled with foam and spray, visibility bad.	Severe structural damage to buildings, wide spread devastation.
13	72-80	134-149	37-41.4	-	-	-
14	81-89	150-166	41.5-46.1	-	-	-
15	90-99	167-183	46.2-50.9	-	-	-
16	100+	184+	51+	-	-	-

Note: wave heights apply to the open sea; waves in sheltered waters will be lower and steeper. As sailors know, other factors such as swell and depth can also modify wave heights.



Complies with applicable CE directives.
Specifications subject to change without notice. Version 3.0
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