



# SWOR-01

## Wind Speed Sensor

The SWOR-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 SWOR-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			

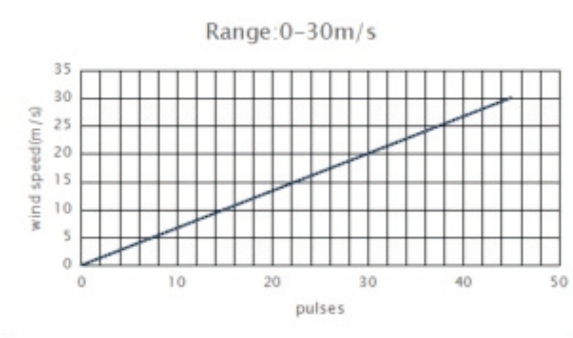
## OUTPUT CHARACTERISTICS

### • Pulses

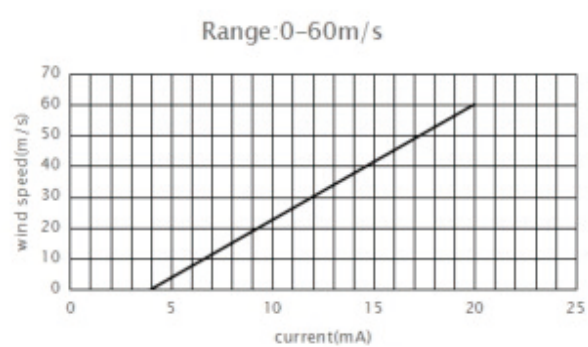
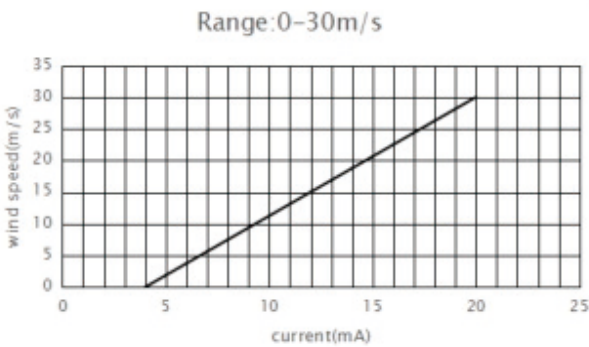
Characteristic transfer function:

$$V = 0.667 * F$$

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



### • Current



### • Voltage

Characteristic transfer function:

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

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

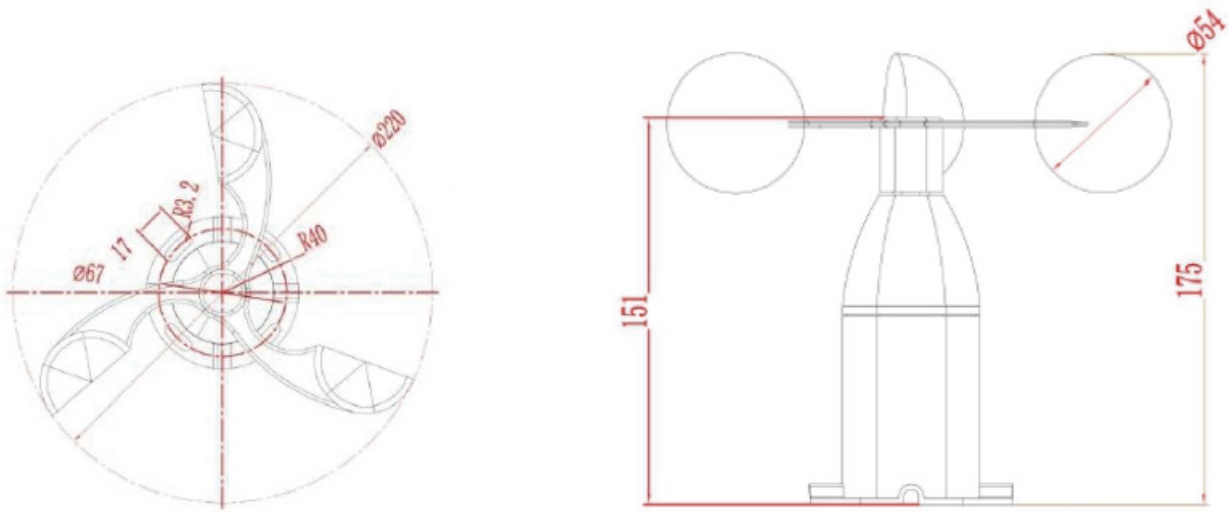
(where V = wind speed (m/s), U = output voltage(V))

### • 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	Type	Output	Range <sup>①</sup>	Cable Length	
SWOR					
	01				4-20mA
		A			0-5V
		B			0-10V
		C			Pulses
		D			RS485
		E			Other
		X			0-30m/s(recommended)
			A		0-60m/s
			B		Units:mm (typ)
				1500	Units:mm
				3000	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: SWOR-01 AA1500 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	Flags extended, leaves move.
4	11-16	20-29	5.5-7.9	Moderate breeze	to break. 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.