FA13B Wind Speed Sensor

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Products description and applicaiton

This FA13B wind speed sensor is specially designed for use with theCrawlercrane, Bridge Inspection Vehicle, and others large cantilever cranes. Product adopts self-balance design, swing range 140 degree, achieve instant horizontal wind speed measuring. Product has built-in anti radio frequency, anti-EMI and lightning surge protection circuit. Product also has built-in senstivetemperature sensor, automatic heating in freezing environment. Wind cup and housing adopts maze structure connection design. Product uses high grade bearing, stainless steel wind cup and aluminum alloy housing with polyester coating. Internal PCB uses conformal coating and glue to seal, protect from water, salt fog and sand-dust.

Features

- Adopt non-contact magnetic measurement technology.
- High accuracy, high reliability
- Professional self-balance design for cranes, strong load capacity.
- Wide wind measuring range, low startingthreshold.
- Metal housing, excellent corrosion resistant design, stainless steel wind cup, high anti-wind level.
- Wind cups use stainless steel, suit for harsh environment application.
- Compact design, include wind speed measuring and heating, ease to mount and maintain onsite.
- Fault tolerant design, product not damage in wrong wiring connection.
- Multistage lightning surge design.
- Wide voltage design.

General Specifications

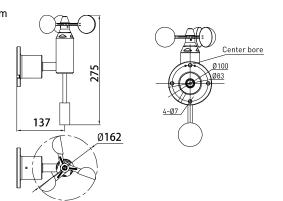| Electrical		Mechanical	
Rated voltage	DC12V~30V[1]	Housing material	Aluminum+Polyester coating
Operating current	Max. 50mA	Wind cup	SS304
Heating voltage	DC12V~30V[2]	Bearing	SS440C
Heating power	≤50W	Amb. humidity	0%~100%RH
Heating type	PTC auto-heating	Amb. temperature	Ta-40℃ ~ +70℃
Lightning surge	IEC61000-4-5 4kV /2kA	IP rate	IEC60529 IP65
		Wiring	Lead wire 0.5m
Electrostatic discharge	IEC61000-4-2 air discharge 16kV	Housing color	Black RAL9005
	IEC61000-4-2 contact discharge 8kV	Weight	2.5 kg
Meteorological			
Starting speed	≤0.5m/s Vu=20℃		
Max. wind speed	＞70m/s		
Range	0.5m/s~50m/s[3]		
Accuracy	±0.5m/s(V_L<5m/s)		
	±3% (V_L>5m/s)		
Resolution	0.1m/s		

1.Rated voltage,seeHow to Order.
2. Heating voltage, seeHow to Order.
3. Measuring range, seeHow to Order.

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Mounting dimensions
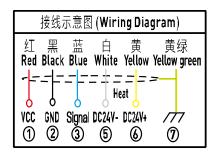
Unit: mm

Center bore
Ø100
Ø83
4-Ø7

275
137
Ø162

Mounting:
1. Install product on the top of equipment, ensure no obstacle around which can affect the wind speed measuring.
2. Fix product with 4 nos. hex screws(not provided).

Caution: refer mounting dimension and wiring diagram to mount the product (mounting dimensionand wiring diagram are provided on the left), keep product on vertical position all the times to ensure measuring wind speed accurately while equipment is operating, and reduce the equipment shock which can damage product.

Wiring diagram

接线示意图 (Wiring Diagram)

红	黑	蓝	白	黄	黄绿
Red	Black	Blue	White	Yellow	Yellow green

Heat

VCC	GND	Signal	DC24V-	DC24V+	⟋⟋⟋
①	②	③	⑤	⑥	⑦

UART output: it is recommended touse RVVP/0.5mm²/copper core/high and low temperature resistant shielding cable, default lead cable length L=3m, maximum communication distant is 200m.
4-20mA current output: it is recommended touseRVVP/0.5mm²/high and low temperature resistant shielding cable, default lead cable length L=3m, maximum communication distant is 1000m.

Caution: blue wire is the signal line, marked as *Signal*, indicates the wind speed signal ouput.

Caution
1 Ensure cable connection is correct before power on.
2 Cable shield layer and housing must be well grouded.
3 Its suggested to return product to facotry for calibrating every 18 months.

UART(Universal Asynchronous Receiver/Transmitter) Protocol: (for reference only)

Baud rate 300, 8bit data, no parity check, one stop bit, signal range 0~VCC.
Data definition: auto-output 6 bytes per 1s.
0xAA 0x03 0xXX 0xXX 0x00 checksum
AA is synchronoushead, 0x03is message length, next 2 bytes combine a word indicate wind speed, checksum = 0xXX+0xXX+0x00, indicatechecksum.
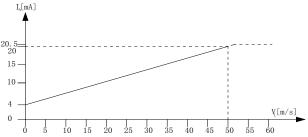For example: 0xAA 0x03 0x00 0x6A0x00 0x6A indicate that wind speed is 0x006A = 10.6m/s (data is binary number, convert to decimal number indicate wind speed), Checkshum is 0x6A=0x00+0x6A+0x00.

Current siganl ouput curve: below curve shows regular 0~50m/s

$I_A[mA]$

20.5
20
15
10
4
0

0 5 10 15 20 25 30 35 40 45 50 55 60

$V[m/s]$

How to Order

P/N	Model	Rated voltage	Signal output	Heating	Lead wire
1000060-002	FA13B	DC12V-DC30V	UART, Baud rate 300bps	Yes	Self-balance, 5-core cable(3 meters)
1000060-003	FA13B	DC12V-DC30V	4-20mAcurrent, 0-30m/s	Yes	Self-balance, 5-core cable(3 meters)
1000060-004	FA13B	DC12V-DC30V	4-20mAcurrent, 0-50m/s	No	Self-balance, 3-core cable(3 meters)
1000060-005	FA13B	DC12V-DC30V	4-20mAcurrent, 0-50m/s	Yes	Self-balance, 5-core cable(3 meters)