# FA01Wind Speed Sensor

## Products description and application

This product is an ecnomic type maintenance free wind speed sensor. It adopts compact design, has light weight, low power consumption, low starting threshold, various signal output for option.
Application: wind monitoring and wind data collection for engineering machinery, container cranes, mines, power plants and so on.
CMC License for Manufacturing Measuring Instruments has been approved.

## Features

- Adopt non-contact magnetic measuring technology, high anti-interference ability and reliablility.
- Wide wind measuring range, low startingthreshold.
- Wind cup and housing adopts maze structure connection design.
- Modular design, ease to mount and maintain on site, suit to various industries and application.
- Fault tolerant design, product not damage in wrong wiring connection.
- Multistage lightning surge design.
- Wide voltage design.

## General Specifications

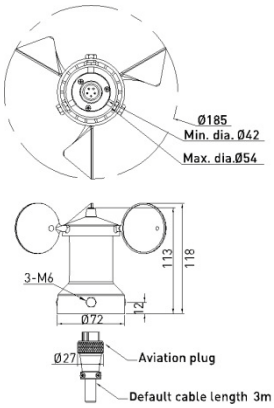
| **Electrical** | | **Mechanical** | |
|---|---|---|---|
| Rated voltage | DC5V~30V[1] | Housing material | PC+ABS |
| Operating current | Max. 35mA | Wind cup | PC+ABS |
| Lightning surge | IEC61000-4-5 4kV /2kA | Bearing | SS440C |
| Electrostatic discharge | IEC61000-4-2 air discharge 16kV | Humidity | 0%~100%RH |
| | IEC61000-4-2 contact discharge8kV | Operating temperature | Ta-40℃ ~ +70℃ |
| | | IP rate | IEC60529 IP65 |
| | | Wiring | Aviation socket[2] |
| | | Housing color | Black RAL9005 |
| | | Weight | 0.2 kg |
| **Meteorological** | | | |
| Starting threshold | ≤0.5m/s Vu=20℃ | | |
| Anti-wind level | ＞70m/s | | |
| Range | 0~60m/s[3] | | |
| Accuracy | ±0.5m/s（$V_L$<5m/s） | | |
| | ±3% ($V_L$>5m/s) | | |
| Resolution | 0.1m/s | | |

**1. Rated voltage, see How to Order.**
**2. Default lead cable length is 3 meters.**
**3. Measuring range, see How to Order.**

# FA01Wind Speed Sensor

## Mounting dimensions

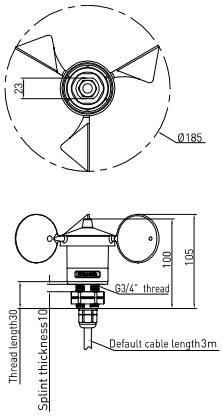
Unit: mm




Mast tube mount

1. Connect and fix the aviation plug and socket.
2.Mount product on the top of equipment with 3 nos. M6 screws.

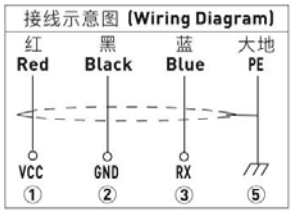
**Caution: Mount theproduct on aflat surface, fix it well, prevent drop.**




G3/4″ thread mount

1. Fix product with 2 nos. G3/4″ thread

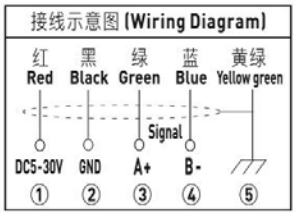
## Wiring diagram




UART output: it is recommended to use RVVP/3-core/0.5mm$^2$ /copper core/high and low temperature resistant shielding cable, maximum communication distanct is 200m.

Caution:

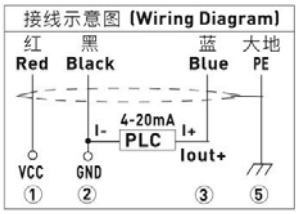
1.Product must be fit with Nanhua FA101C wind data display.
2.Blue wire is the signal line, marked as *Signal*, indicates the wind speed signal ouput.
3. Actual communication distance is in accordance with onsite environment.




RS485 signal output: it is recommended to use RVVP/4-core/0.5mm$^2$ /copper core/high and low temperature resistant shielding cable, maximum communication distanct is 1000m.

Caution:

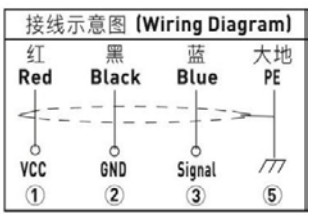
1. Greensignal line be marked as $A^+$.Blue signal line be marked as $B^-$.
2. Actual communication distance is in accordance with onsite environment.




4-20mA current signal output: it is recommended to use RVVP/3-core/0.5mm$^2$ /copper core/high and low temperature resistant shielding cable, maximum communication distanct is 1000m.

Caution:

1. Blue wire is the signal line, marked as *Signal*, indicates the wind speed signal ouput.
2. Actual communication distance is in accordance with onsite environment.




NPN signal output: it is recommended to use RVVP/3-core/0.5mm$^2$ /copper core/high and low temperature resistant shielding cable, maximum communication distanct is 1000m.

Caution:

1. Blue wire is the signal line, marked as *Signal*, indicates the wind speed signal ouput.
2. Actual communication distance is in accordance with onsite environment.

**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.**

# FA01Wind Speed Sensor

UART Protocol
Baud rate:
300bit/s, 8bit data, no parity check, one stop bit, signal amplitude0~VCC.
Data definition: auto-output a frame per 1s, total 6 bytes.

| | | | | | |
|---|---|---|---|---|---|
| 0xAA | 0x03 | 0xXX | 0xXX | 0x00 | checksum |

Byte definition: 0xAA is synchronoushead, 0x03 is message length, nexttwo bytes combine a word which indicate wind speed,checksum=0x03+0xXX+0xXX+0x00, indicate checksum.
For example: 0xAA 0x030x00 0x6A 0x000x6D
Wind speed is 0x006A = 10.6m/s(data is binary number, convert to decimal number indicate wind speed)
Checksum is 0x6D=0x03+0x00+0x6A+0x00

**Caution:**
**1. Product output signal only, signal transmittion distance is maximum 200m by usinglow baud rate.**
**2 .Product must be fit with Nanhua FA101C wind data display.**

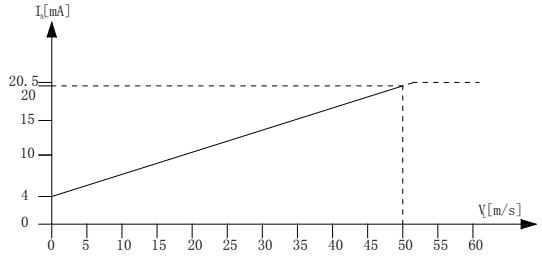
RS485 protocol
Baud rate: 4800bit/s, 8bit data, no parity check, one stop bit.

Query wind data
Command: 21H 04H 00H 06H 00H 01H D6H ABH
Response: 21H 04H 02H xxH xxH CRCL CRCH
Byte definition:
21H is slave address in the command, 04H is function code,00H, 06H are the high and low address of the first register,00H, 01H are the high and low quantity of register, ABH, D6H are the high and low of previous six bytes' CRC check code.

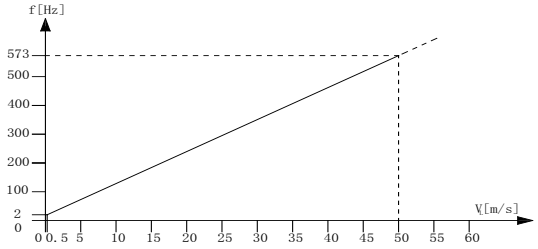
21H is salve address in the response, 04H is function code, 02H is byte, xxH, xxH are high and low byte of returned wind speed data, e.g. 01H, 31H it is 305, indicate wind speed 30.5m/s, CRCH, CRCL are high and low of previous five returned bytes' CRC check code.

**Additional instruction:**
**1. One RS485 bus connect to only one wind sensor.**
**2. Error address and command not be responsed.**
**3. CRC chek uses ANSI CRC16: polynomial is X16+X15+X2+1。**

Current signal output curve:




NPN signal outputcurve:




## How to Order

| P/N | Model | Rated voltage | Signal output | Mount |
|---|---|---|---|---|
| 1000054-001 | FA011 | DC18V-DC30V | UART, Baud rate 300bps | Ø54 mast tube mount, 5-pin aviation scoket |
| 1000054-002 | FA013 | DC18V-DC30V | 4-20mA current, 0-60m/s | Ø54mast tube mount, 5-pin aviation scoket |
| 1000054-004 | FA013 | DC18V-DC30V | 4-20mA current, 0-60m/s | G3/4thread mount, 3-core lead cable (L=3m) |
| 1000054-012 | FA013 | DC18V-DC30V | 4-20mA current, 0-30m/s | G3/4thread mount, 3-core lead cable (L=3m) |
| 1000054-007 | FA013 | DC18V-DC30V | 4-20mA current, 0-30m/s | Ø54mast tube mount, 5-pin aviation scoket |
| 1000054-005 | FA014 | DC5V-DC30V | RS485, modbus protocol, Baud rate4800bps | Ø54 mast tube mount, 5-pin aviation scoket |
| 1000054-010 | FA014 | DC5V-DC30V | RS485, modbus protocol, Baud rate 4800bps | G3/4thread mount, 4-core lead cable (L=3m) |
| 1000054-008 | FA015 | DC5V-DC30V | NPN, Open Collector, 0-60m/s, 0-1221Hz, 0m/s=0Hz, 60m/s=1221Hz, | Ø54mast tube mount, 5-pin aviation scoket |
| 1000054-009 | FA015 | DC5V-DC30V | NPN, Open Collector, 0-60m/, 2-573Hz, 0m/s=2Hz, 60m/s=573Hz, | Ø54mast tube mount, 5-pin aviation scoket |
| 1000054-011 | FA015 | DC5V-DC30V | NPN, Open Collector, 0-60m/s, 0-600Hz, 0m/s=0Hz, 60m/s=600Hz, | Ø54mast tube mount, 5-pin aviation scoket |

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