USER GUIDE FOR CDF-11A WIND DIRECTION SENSNOR

This document is applied for the following products

SKU	CDF	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDF-11A	Wind Direction Sensor, 4-20mA RS485 0-5V Output, Carbon fiber, 0-360°, ±3°			

1. Introductions

The CDF-11A wind direction sensor is a sensitive wind direction indicator that gives a visual indication of wind direction. High precision magnetic sensitive chips are built in the housing shell. The wind vane is constructed on low inertia light metal to show wind directions. The product is wide range, good linearity, strong anti- lightning strike, good performance.

2. Specification

Output	4-20mA	0-5V	RS485
Supply Voltage	5V,12V-24V	5V,12V-24V	5V,12V-24V
Load Capacity	<500Ω(typ 250Ω)	>1kΩ	
Range	0~360°		
Accuracy	±3°		
Resolution	1°		
Starting Threshold	<0.5m/s		
Limit wind speed	50m/s		
Ingress Protection	IP65		
Operating Temperature	-40℃~+50℃		
Cable Grade	Nominal voltage:300V ,Temperature grade:80℃		
Weight(unpacked)	195g		
Dimension	Turning Radius:147mm,Height:199mm		
Main material	Carbon fiber		
Storage Condition	10℃-50℃@20%-90%RH		

3.Working Process

Wind vanes are usually streamlined to reduce wind resistance and ensure sensitive rotation even in light winds. For example, it can be designed to resemble the shape of an airplane wing, with a sharp front end and a gradually wider rear end, which allows wind to flow smoothly over the surface of the vane and reduces the influence of air turbulence on its rotation.

It is necessary to ensure that the center of gravity of the wind vane is located on the rotation axis, so that the wind vane is more stable when rotating.
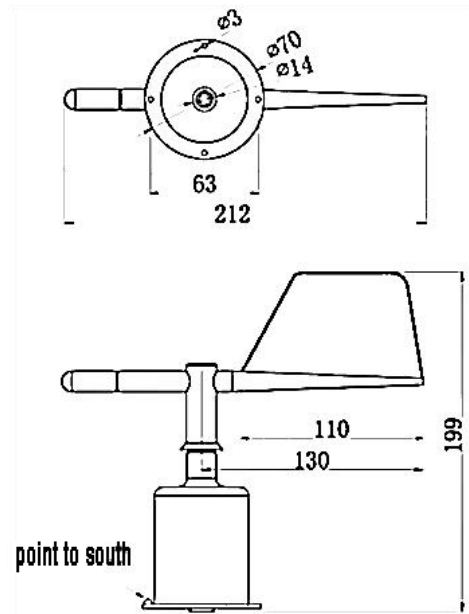
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4. Electrical Connections

Connector(cable)	Voltage	Current	Connector(cable)	RS485
Pin 1(red)	V+	V+	Red	V+
Pin 2(yellow)	Vout	Iout	Yellow	RS485A
Pin 3(black/green)	V-	V-	Blue	RS485B
Pin 4(blue)			Black/Green	V-

5. Dimensions

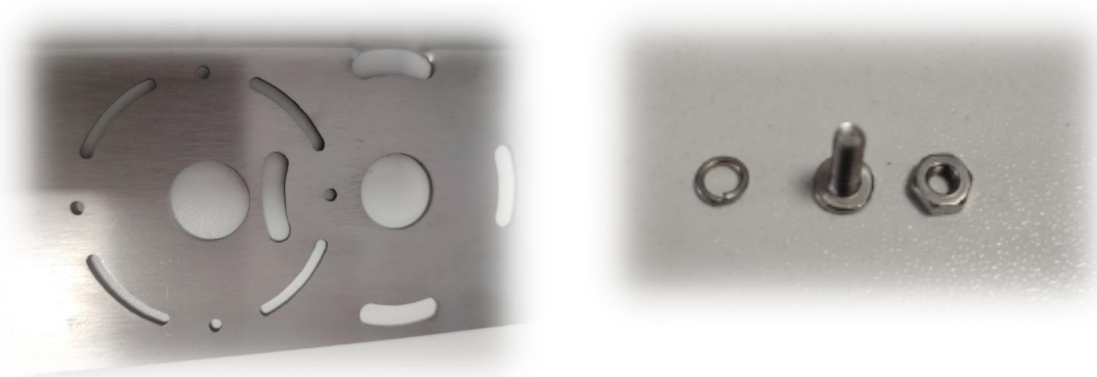

6. Installation

Step 1: Open the box and take out the wind sensor.

Step 2: Prepare the brackets, [screws(M3), nuts, and gaskets]*4pcs to be installed.

Step 3: Align the screw holes on the wind direction sensor with the holes on the mounting support, and lock the screws(4psc).Please make sure the marker is pointed to the **south** during installation(you can use a compass for positioning).

Marker
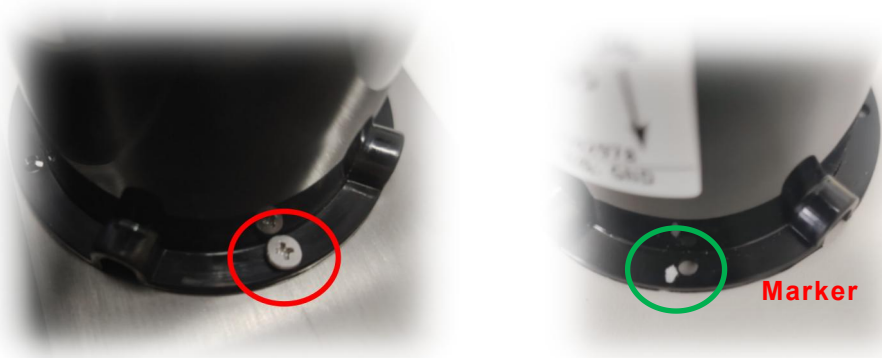
Step 4: Connect the navigation connector to the sensor base connector.
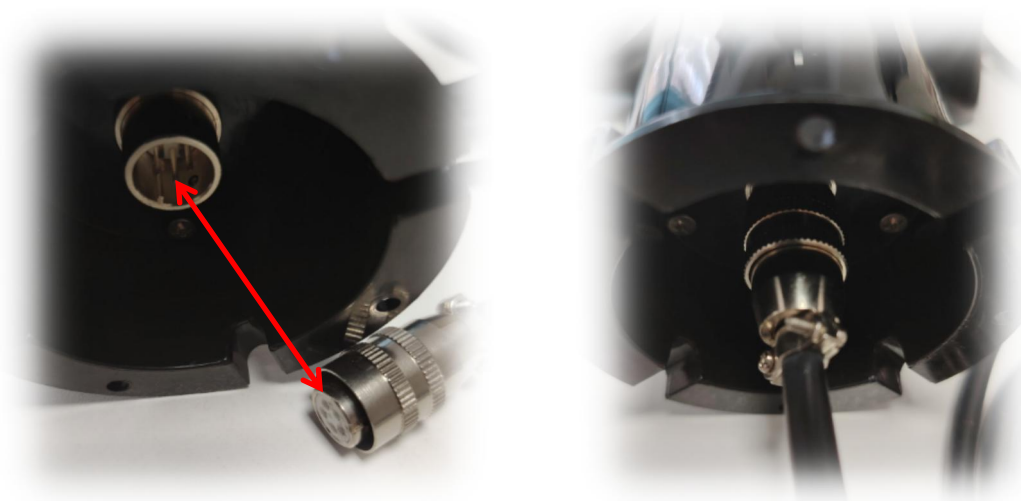
7. Communication Protocol（MODBUS）

Transmission mode: MODBUS-RTU,**Baud rate:** 9600bps,**Data bits:**8,**Stop bit:**1,**Check bit:**no

Slave address:the factory default is 01H (set according to the need,00H to FFH)

7.1 The 03H Function Code Example: Read The Wind Direction

Host Scan Order(slave address:0x01)
01 <u>03 00 00 00 01</u> 840A

Slave Response
01 <u>03 02</u> 00 B4 B833

Wind Direction:(00B4)H=(180)D=180°

7.2 The 10H Function Code Example: Modify the slave address

Host Scan Order (Changed to 01H,read and write address must be 00H):
<u>00 10</u> 01 BD C0

Slave Response:
<u>00 10</u> 007C

7.3 The 20H Function Code Example: Read The Slave Address

Host Scan Order:
<u>00 20 00 68</u>

Slave Response(addr.=01H):
<u>00 20 01</u> A9C0

Note:
1. All underlined is fixed bit;

2. The last two bytes is CRC check command.

Note: This product has been tested and complies with European CE requirements for EMC directive.

7.3 OUTPUT CHARACTERISTICS

- **Current**
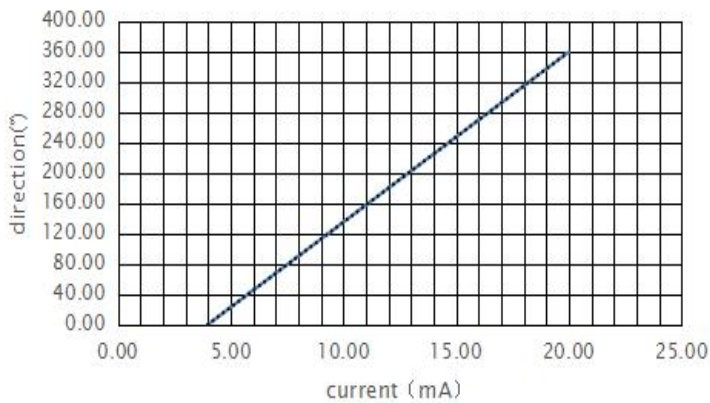
4-20mA is corresponding to 0...360°directions.

- **Voltage(0-5V)**
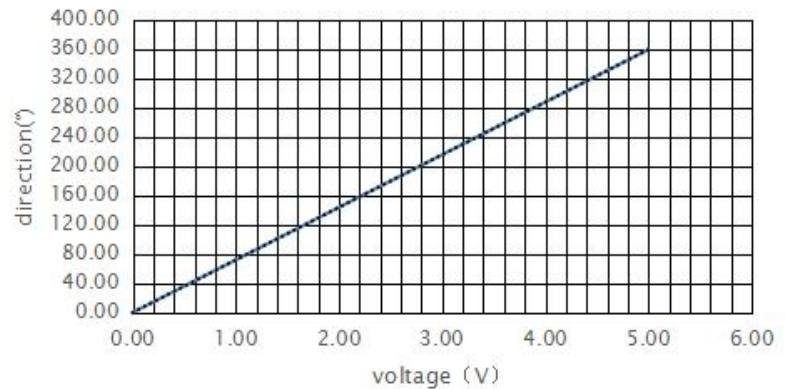
0-5V is corresponding to 0...360°directions.

- **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 appendix for communication protocol

Range:0-360°

Range:0-360°

8. Troubleshooting

If some error occurs, such as no output or unreliable. Please disconnect the sensor first, then check if the sensor installation and connection is correct with the instruction manual.

If still not successful, please contact our company.

9. Support contacts:

CODA

Hunan Coda Electronic Tech Co.,Ltd

T:+86-0731-85117089

W:www.codasensor.com

E:Molly@codasensor.com