

Aluminum shellwindTowardsTran smitter (Analog type)

SN-FXA-*
Ver 2.0

Table of contents

1.1 Product Overview	3
1.2 Features	3
1.3 Main parameters	3
1.4 System Framework Diagram	4
1.5 Product Selection	6
1.6 Product Appearance	7
Chapter 2 Hardware Connection	7
2.1 Equipment inspection before installation	7
2.2 Interface Description	7
2.2.1 Sensor Wiring	8
2.2.2 Wiring example	8
2.3 Installation method	9
2.4 Notes	9
Chapter 3 Calculation Methods	9
Chapter 4 Common Problems and Solutions	13

1.1Product Overview

The aluminum shell wind direction transmitter is small and light, easy to carry and assemble. The new design concept can effectively obtain wind direction information. The shell is made of high-quality aluminum alloy profiles, and the exterior is sprayed with plastic, which has good anti-corrosion and anti-erosion effects, and can ensure that the transmitter will not rust for a long time. At the same time, it is equipped with a smooth internal bearing system to ensure the accuracy of information collection. It is widely used in wind direction measurement in greenhouses, environmental protection, weather stations, ships, docks, breeding and other environments.

1.2Features

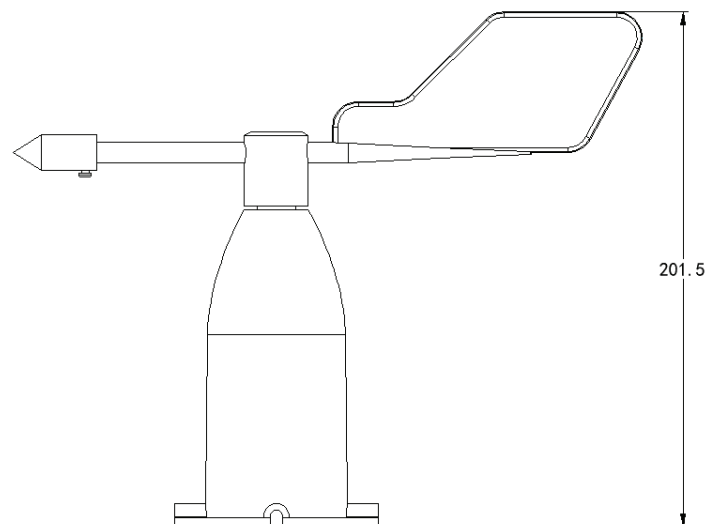
- Anti-electromagnetic interference processing
- Adopt high-performance bearings, small rotation resistance and accurate measurement
- Aluminum shell, strong mechanical strength, high hardness, corrosion resistance, no rust, can be used outdoors for a long time
- The structure and weight of the equipment are carefully designed and distributed, with small moment of inertia and sensitive response.
- Applicable to both four-wire and three-wire connection

1.3Main parameters

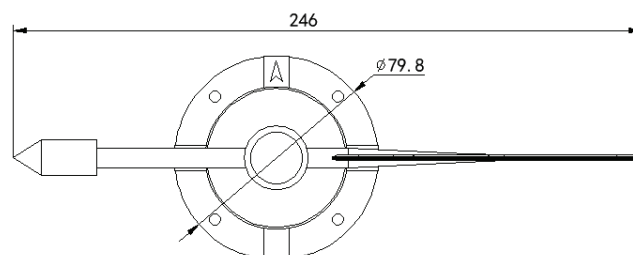
DC power supply (default)	10~30V DC	
Maximum power consumption	Current output	0.6W
	Voltage output	0.6W
Transmitter circuit operating temperature	-40℃~+60℃,0%RH~80%RH	
Measuring range (360°)	0~359.9°	
Measuring range (16 positions)	16Directions	
Measuring range (8	8Directions	

positions)		
Dynamic response time	$\leq 0.5s$	
Output signal	Current output	4~20mA
	Voltage output	0~5V/0~10V
Load Capacity	Voltage output	Output resistance $\leq 250\Omega$
	Current output	$\leq 600\Omega$

Product size:



单位: mm

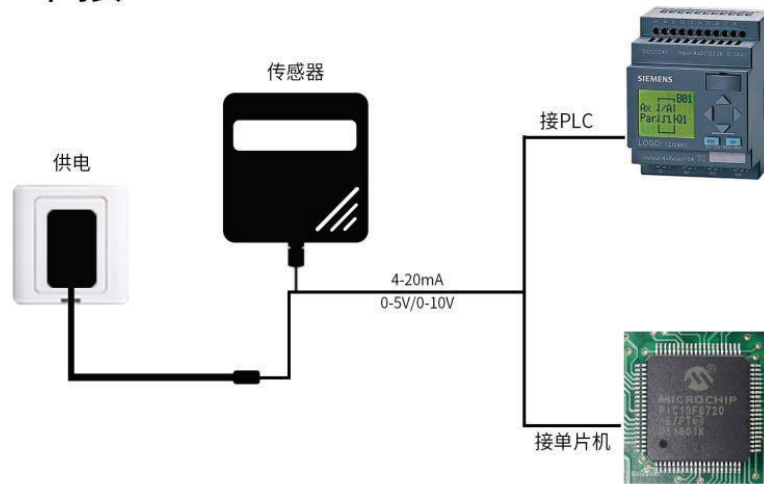


1.4 System framework diagram

When the system needs to connect an analog version sensor, you only need to power the device and connect the analog output line to the microcontroller

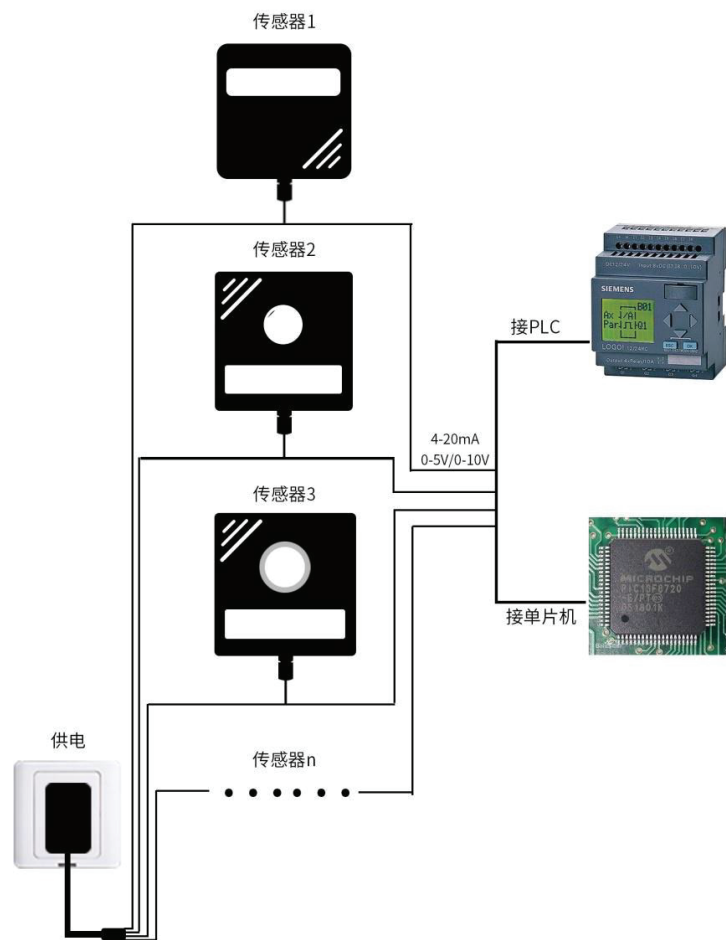
orPLCofDIinterface, and write the corresponding acquisition program according to the conversion relationship described later.

单接



When the system needs to connect multiple analog sensors, each sensor needs to be connected to a different analog acquisition port of the microcontroller orPLCofDIinterface, and write the corresponding acquisition program according to the conversion relationship described later.

多接



1.5Product Selection

SN-					Company Code	
	3000-					
		FXA-			Aluminum shell wind direction transmitter	
			I20-		4~20 mA	Current output
			V05-		0~5V	Voltage output
			V10-		0~10V	Voltage output
					360	360°
		16			16 directions	
	null	8 directions				

1.6 Product Appearance



No. 2chapter Hardware Hookup

2.1 Equipment pre-installation inspection

Equipment List:

- Transmitter equipment 1 tower
- Mounting Screws 4 individual
- Certificate of conformity, warranty card, wiring instructions, etc.
- Install the drag strip 1 individual

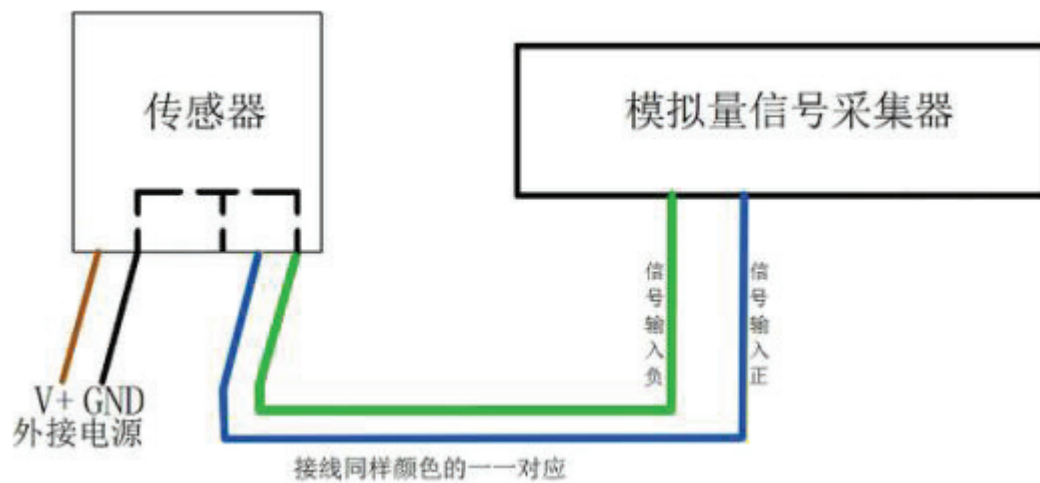
2.2 Interface Description

Wide voltage 10~30VDC power input. 0-10V Output devices can only be used 24V powered by.

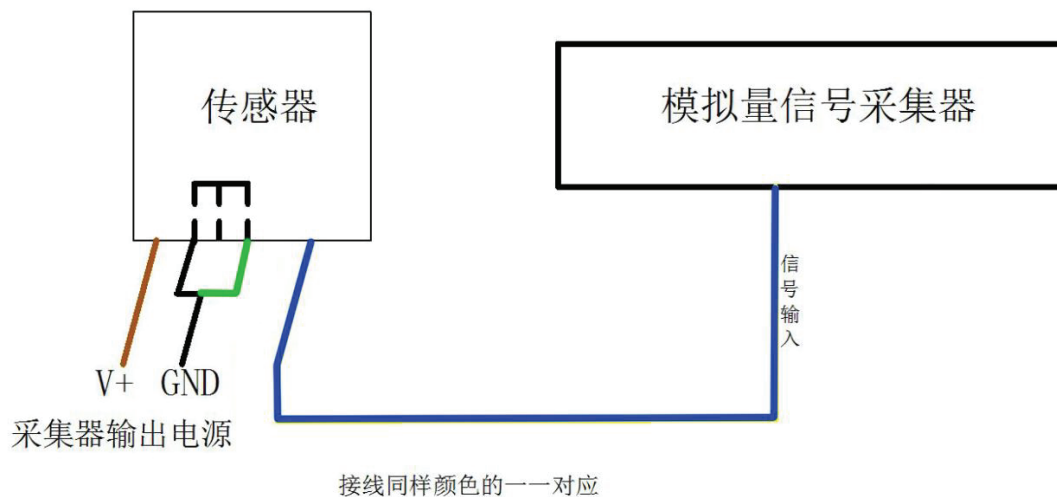
2.2.1 Sensor Wiring

	Line Color	illustrate
power supply	brown	Power positive
	black	Negative power supply
Output	blue	Wind direction signal positive
	yellow(green) color	Wind direction signal negative

2.2.2 Wiring example



Four-wire connection diagram



Three-wire connection diagram

2.3 Installation method

Flange installation and threaded flange connection make the wind direction sensor firmly fixed on the flange and chassis $\varnothing 79.8\text{mm}$, exist $\varnothing 68\text{mm}$ Four uniform openings are made on the circumference of $\varnothing 6\text{mm}$ The mounting holes are used to fix it tightly on the bracket with bolts to keep the whole set of instruments at the best level and ensure the accuracy of wind direction data. The flange connection is easy to use and can withstand greater pressure.



2.4 Notes

1. Users are not allowed to disassemble or touch the sensor core to avoid damage to the product.

2. Try to stay away from high-power interference equipment to avoid inaccurate measurements, such as frequency converters, motors, etc. When installing or removing the transmitter, the power supply must be disconnected first. Water entering the transmitter may cause irreversible changes.

3. Prevent chemical reagents, oil, dust, etc. from directly damaging the sensor. Do not use it for a long time in an environment with condensation or extreme temperature. Prevent cold and hot shocks.

Chapter 3 Calculation Methods

【360°】 Calculation method:

4-20mA Output comparison table	0-10V Output comparison table	0-5V Output comparison table
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Output value (mA)	Corresponding angle value	Output value (V)	Corresponding angle value	Output value (V)	Corresponding angle value
≈ 4	0°	≈ 0	0°	≈ 0	0°
≈ 20	359.9°	≈ 10	359.9°	≈ 5	359.9°

The range is 0~360. Take 0-10V output as an example. When the output signal is 5V, calculate the current wind direction. The span of the wind direction range is 360. When expressed with a 10V voltage signal, $360/10V=36/V$, that is, every 1V change in voltage corresponds to a 36-degree change in wind direction. The measured value is $5V-0V=5V$. $5V*36/V=180$ degrees. The current wind direction is 180 degrees.

【16 directions】 Calculation method:

4-20mA Output comparison table		0-10V Output comparison table		0-5V Output comparison table	
Output value (mA)	Corresponding wind direction	Output value (V)	Corresponding wind direction	Output value (V)	Corresponding wind direction
19.5-4.5	North Wind	9.68-0.31	North Wind	4.84-0.15	North Wind
4.5-5.5	North Northeast Wind	0.31- 0.93	North Northeast Wind	0.15-0.46	North Northeast Wind
5.5-6.5	Northeast Wind	0.93-1.56	Northeast Wind	0.46-0.78	Northeast Wind
6.5-7.5	East Northeast Wind	1.56-2.18	East Northeast Wind	0.78-1.09	East Northeast Wind
7.5-8.5	Dongfeng	2.18-2.81	Dongfeng	1.09-1.40	Dongfeng
8.5-9.5	East southeast wind	2.81-3.43	East southeast wind	1.40-1.71	East southeast wind
9.5-10.5	Southeast Wind	3.43-4.06	Southeast Wind	1.71-2.03	Southeast Wind
10.5-11.5	South southeast wind	4.06-4.68	South southeast wind	2.03-2.34	South southeast wind

11.5-12.5	south wind	4.68-5.31	south wind	2.34-2.65	south wind
12.5-13.5	South-southwest wind	5.31-5.93	South-southwest wind	2.65-2.96	South-southwest wind
13.5-14.5	Southwest Wind	5.93-6.56	Southwest Wind	2.96-3.28	Southwest Wind
14.5 -15.5	West Southwest Wind	6.56-7.18	West Southwest Wind	3.28-3.59	West Southwest Wind
15.5-16.5	West Wind	7.18-7.81	West Wind	3.59-3.90	West Wind
16.5-17.5	West northwest wind	7.81-8.43	West northwest wind	3.90-4.21	West northwest wind
17.5-18.5	Northwest Wind	8.43-9.06	Northwest Wind	4.21-4.53	Northwest Wind
18.5-19.5	Northwest wind	9.06-9.68	Northwest wind	4.53-4.84	Northwest wind

【8 directions】 Calculation method:

4-20mA Output comparison table		0-10V Output comparison table		0-5V Output comparison table	
Output value (mA)	Corresponding wind direction	Output value (V)	Corresponding wind direction	Output value (V)	Corresponding wind direction
≈4	North Wind	≈0	North Wind	≈0	North Wind
≈6.2857	Northeast Wind	≈1.4286	Northeast Wind	≈0.7143	Northeast Wind
≈8.5714	Dongfeng	≈2.8571	Dongfeng	≈1.4286	Dongfeng
≈10.8571	Southeast Wind	≈4.2857	Southeast Wind	≈2.1429	Southeast Wind
≈13.1429	south wind	≈5.7143	south wind	≈2.8571	south wind
≈15.4286	Southwest Wind	≈7.1429	Southwest Wind	≈3.5714	Southwest Wind
≈17.7143	West Wind	≈8.5714	West Wind	≈4.2857	West Wind
≈20	Northwest	≈10	Northwest	≈5	Northwest

	Wind		Wind		Wind
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Chapter 4 Common Problems and Solutions

Fault phenomenon: No output or output error

Possible causes:

- 1)The range correspondence error causesPLCCalculation error. Please refer to the technical specifications in the first section for the range.
- 2)The wiring method is incorrect or the wiring sequence is wrong.
- 3)The supply voltage is incorrect (for0-10VType24Vpowered by).
- 4)The distance between the transmitter and the collector is too long, causing signal disorder.
- 5) PLCThe collection port is damaged.
- 6)The equipment is damaged.