XC8192

Protective Wind Speed, Air Volume and Temperature Real-Time Detector

User Manual

File Version: V25.6.9



XC8192 using the standard   RS485 bus MODBUS-RTU protocol,easy access to PLC，DCS and other instruments or systems for monitoring temperature,wind speed,风量 state quantities.The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term

stability,can be customized RS232,RS485,CAN,4-20mA,DC0~5V\10V,ZIGBEE,Lora,WIFI,GPRS and other output methods.

Technical Parameters

Technical parameter	Parameter value
Brand	XUNCHIP
Temperature measuring range	-30℃~85℃
Temperature measuring accuracy	±0.5℃ @25℃
Wind speed range	0~30m/s
Start wind	0.2m/s
Wind speed accuracy	±3%
Instantaneous volume	0~999m3/s
Cumulative volume	0~65535m3/h
Communication Interface	RS485
Default baud rate	9600 8 n 1
Power	DC6~24V 1A
Running temperature	-30~80℃
Working humidity	5%RH~90%RH

Product Size

※ Manual measurement, please refer to the actual product
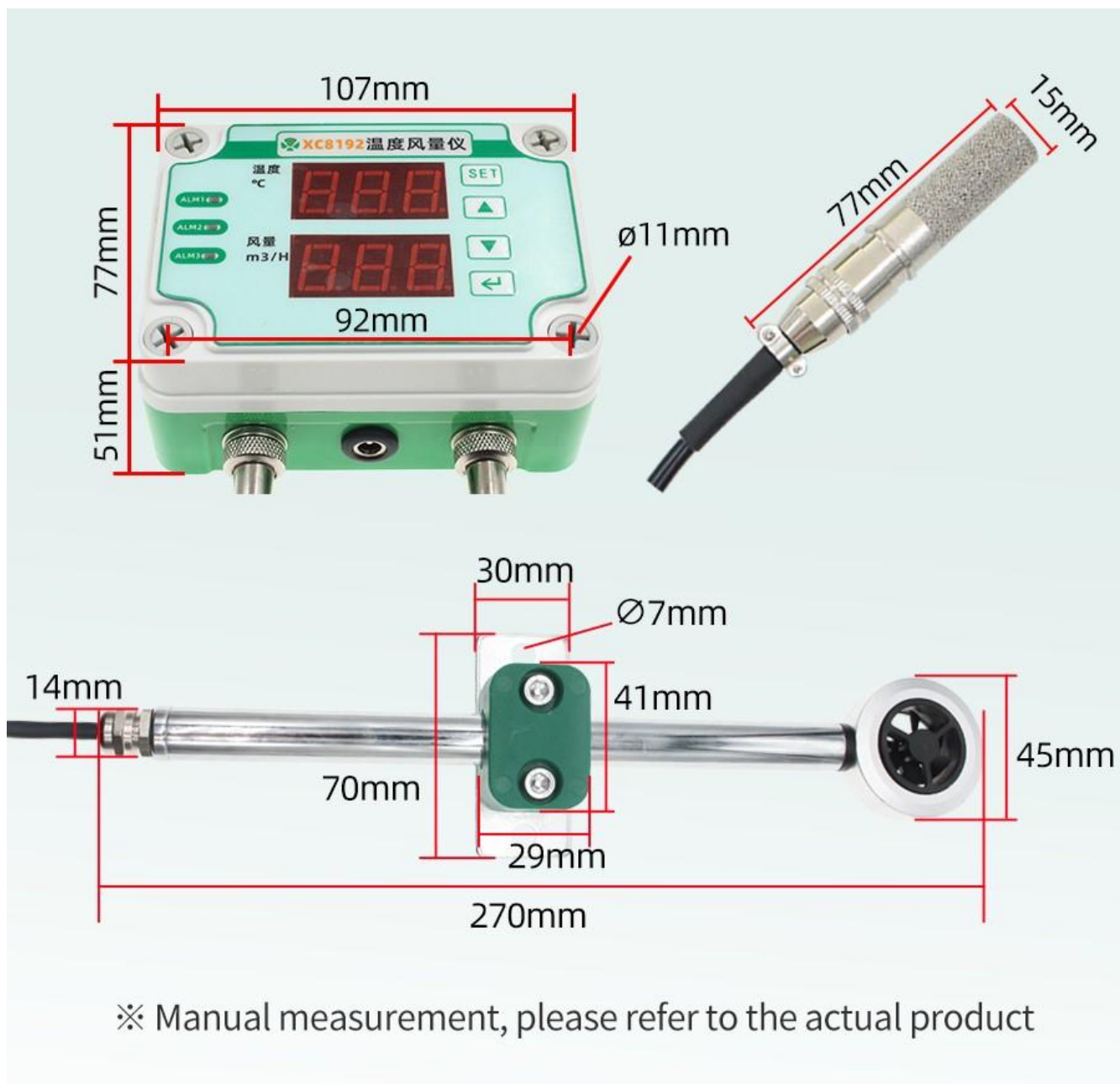
software to test

All operation commands are hexadecimal data, and the default communication baud rate: 9600,8,N,1

Read the data function code 03

Query frame (hexadecimal), send example: query 1# device 1 data, The host computer sends commands: 01 03 00 00 00 01 84 0A

Command description	Device address	Feature codes	Start address	The length of the data	Checksum
Device address	01	03	00 00	00 01	84 0A

For the correct query frame, the device responds with data: 01 03 02 00 79 79 A6 in the following format:

Command description	Device address	Feature codes	Start address	The length of the data	Checksum
Device address	01	03	02	00 79	79 A6

Data description: The data in the command is hexadecimal, taking data 1 as an example, 00 79 is converted to a decimal value
121, assuming the data magnification is 100, then the true value is
121/100=1.21, and so on.

A table of common data addresses

STATUS QUANTITY DATA REGISTER

ADDR.	REG	TITLE	R/W	NOTE
40001	00 00	TEMPERATURE DATA	R	0~65535
40002	00 00	AIR DATA	R	0~65535
40003	00 00	WIND SPEED DATA	R	0~65535
40004	00 00	CROSS-SECTIONAL DATA	R	0~65535

PARAMETER REGISTERS

ADDR.	REG	TITLE	R/W	NOTE
40101	00 65	TYPE ID	R	0~59999
40102	00 65	POINTS	R	1~20
40103	00 66	ADDRESS	R/W	1~249
40104	00 67	BAUD RATE	R/W	0~6
40105	00 68	MODE	R/W	1. QUERY 2. UPLOAD
40106	00 69	PROTOCOL	R/W	1 MODBUS-RTU
40107	00 6A	INTERVAL	R/W	1~36000
40108	00 6B	VALUE	R/W	SOME PRODUCTS ARE AVAILABLE

Wiring instructions

In the case of broken wires, wire the wires as shown in the figure. If the product itself has no leads, the core color is for reference.

How to use software?

All operation commands are hexadecimal data, and the default communication baud rate: 9600,8,N,1

Read the data function code 03

Query frame (hexadecimal), send example: query 1# device 1 data, The host computer sends commands: 01 03 00 00 00 01 84 0A

Command description	Device address	Feature codes	Start address	The length of the data	Checksum
Device address	01	03	00 00	00 01	84 0A

For the correct query frame, the device responds with data: 01 03 02 00 79 79 A6 in the following format:

Command description	Device address	Feature codes	Start address	The length of the data	Checksum
Device address	01	03	02	00 79	79 A6

Data description: The data in the command is hexadecimal, taking data 1 as an example, 00 79 is converted to a decimal value 121, assuming the data magnification is 100, then the true value is 121/100=1.21, and so on.

A table of common data addresses

STATUS QUANTITY DATA REGISTER

ADDR.	REG	TITLE	R/W	NOTE
40001	00 00	TEMPERATURE DATA	R	0~65535
40002	00 00	AIR DATA	R	0~65535
40003	00 00	WIND SPEED DATA	R	0~65535
40004	00 00	CROSS-SECTIONAL DATA	R	0~65535

PARAMETER REGISTERS

ADDR.	REG	TITLE	R/W	NOTE
40101	00 65	TYPE ID	R	0~59999
40102	00 65	POINTS	R	1~20
40103	00 66	ADDRESS	R/W	1~249
40104	00 67	BAUD RATE	R/W	0~6
40105	00 68	MODE	R/W	1. QUERY 2. UPLOAD
40106	00 69	PROTOCOL	R/W	1 MODBUS-RTU
40107	00 6A	INTERVAL	R/W	1~36000
40108	00 6B	VALUE	R/W	SOME PRODUCTS ARE AVAILABLE

How to use?

The temperature and air gauge can be used in various occasions such as wind power generation, weather stations, flower breeding, railways, agricultural greenhouses, and public environments

Flower farming

Meteorological monitoring
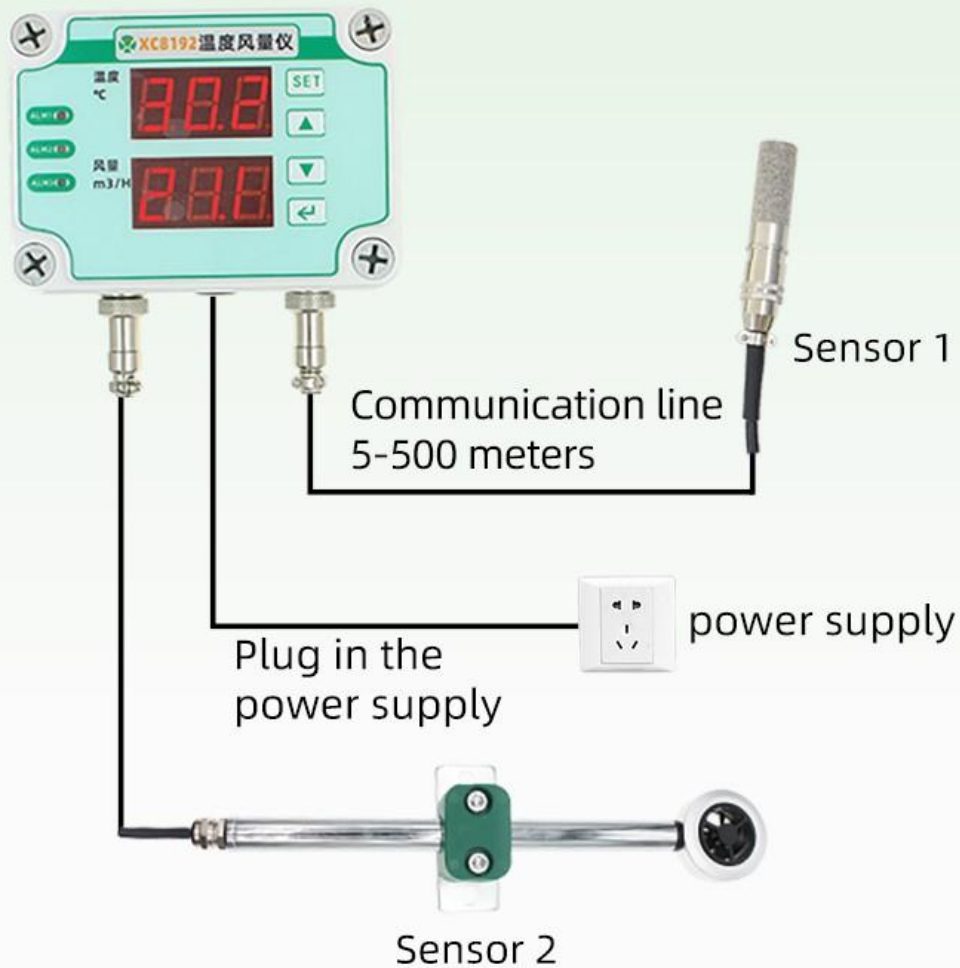

Construction site

Railway engineering

Agricultural greenhouses

Public Environment

Application solution

Temperature air gauge

Sensor 1

Communication line
5-500 meters

power supply

Plug in the
power supply

Sensor 2

Product List

Temperature and air gauge are delivered according to the user's selection

Communication Protocol

The product uses the RS485 MODBUS-RTU standard protocol format, and all operation or reply commands are in hexadecimal data. When the device leaves the factory, the default device address is 1, and the default baud rate is: for modules and non-recording instruments: 9600, 8, n, 1 (for the recorder series products, the default is: 115200, 8, n, 1).

1. Read data (Function code 0x03)

The inquiry frame (in hexadecimal). Example of sending: To query 1 piece of data of device No. 1, the host computer sends the command: 01 03 00 00 00 03 05 CB .

Address	Function code	Starting address	Data length	Checksum
01	03	00 00	00 03	05 CB

For a correct inquiry frame, the device will respond with data: 01 03 06 02 1A 00 00 00 00 79 55 , and the response format is:

Address	Function code	Length	Data 1	Data 2	Data 3	Checksum
01	03	06	02 18	02 19	02 1A	79 55

Data description: The data in the command is in hexadecimal. Taking Data 1 as an example, 02 18 converted to decimal value is 536. Assuming the data magnification factor is 100, then the true value is 536/100 = 5.36, and the others can be deduced by analogy.

2. Common Data Address Table

Configuration Address	Register Address	Register Description	Data Type	Value Range

40001	00 00	temperature	Read Only	0~65535
40002	00 01	wind speed	Read Only	0~65535
40003	00 02	风量	Read Only	0~65535
40101	00 64	Model Code	Read-only	0~59999
40102	00 65	Total Number of Measuring Points	Read-only	1~1600
40103	00 66	Device Address	Read/Write	1~249
40104	00 67	Baud Rate	Read/Write	0~6
40105	00 68	Communication Mode	Read/Write	1 Query
40106	00 69	Protocol Type	Read/Write	1 MODBUS-RTU

3. Read and modify the device address
(1) Read or query the device address

If you don't know the current device address and there is only one device on the bus, you can query the device address through the command FA 03 00 66 00 01 71 9E .

Device address	Function code	Starting address	Data length	Checksum
FA	03	00 66	00 01	71 9E

FA, which is 250, is the universal address. When you don't know the address, you can use 250 to obtain the real device address. 00 66 is the register of the device address.

For a correct query command, the device will respond. For example, the response data is: 01 03 02 00 01 79 84. The format analysis is shown in the following table:

Device address	Function code	Starting address	Address ID	Checksum
01	03	02	00 01	79 84

In the response data, the first byte 01 represents the real address of the current device.

(2) Change the device address

For example, if the current device address is 1 and you want to change it to 02, the command is: 01 06 00 66 00 02 E8 14 .

Device address	Function code	Register address	Target address	Checksum
01	06	00 66	00 02	E8 14

After the change is successful, the device will return the information: 02 06 00 66 00 02 E8 27. The format analysis is shown in the following table:

Device address	Function code	Register address	Target address	Checksum
02	06	00 66	00 02	E8 27

In the response data, after the modification is successful, the first byte is the new device address. Generally, after the device address is changed, it takes effect immediately. At this time, users need to modify the query commands in their own software accordingly.

4. Read and modify the baud rate
(1) Read the baud rate

The default factory baud rate of the device is 9600. If you need to change it, you can perform the change operation according to the following table and the corresponding communication protocol. For example, to read the baud rate ID of the current device, the command is: 01 03 00 67 00 01 35 D5 . The format analysis is as follows.

Device address	Function code	Starting address	Data length	Checksum

| 01 | 03 | 00 67 | 00 01 | 35 D5 |

Read the baud rate code of the current device. Baud rate codes: 1 for 2400; 2 for 4800; 3 for 9600; 4 for 19200; 5 for 38400; 6 for 115200.

For a correct query command, the device will respond. For example, the response data is: 01 03 02 00 03 F8 45. The format analysis is shown in the following table:

Device address	Function code	Data length	Baud rate code	Checksum
01	03	02	00 03	F8 45

According to the baud rate code, 03 represents 9600, which means the current baud rate of the device is 9600.

(2) Change the baud rate

For example, to change the baud rate from 9600 to 38400, that is, change the code from 3 to 5, the command is: 01 06 00 67 00 05 F8 16 .

Device address	Function code	Register address	Target baud rate	Checksum
01	06	00 67	00 05	F8 16

Change the baud rate from 9600 to 38400, that is, change the code from 3 to 5. The new baud rate will take effect immediately. At this time, the device will stop responding, and the query command for the device's baud rate needs to be modified accordingly.

5. Read and modify the correction value (valid for some products)
(1) Read the correction value

When there is an error between the data and the reference standard, we can reduce the display error by adjusting the "correction value". The adjustable range of the correction difference is plus or minus 1000, that is, the value range is 0 - 1000 or 64535 - 65535. For example, when the displayed value is 100 less than the actual value, we can correct it by adding 100. The command is: 01 03 00 6B 00 01 F5 D6 . In the command, 100 is the hexadecimal value 0x64. If you need to decrease the value, you can set a negative value. For example, - 100 corresponds to the hexadecimal value FF 9C. The calculation method is 100 - 65535 = 65435, and then convert it to hexadecimal, which is 0x FF 9C. The device correction value starts from 00 6B. We take the first parameter as an example for illustration. When there are multiple parameters, the methods for reading and modifying the correction value are the same.

Device address	Function code	Starting address	Data length	Checksum
01	03	00 6B	00 01	F5 D6

For a correct query command, the device will respond. For example, the response data is: 01 03 02 00 64 B9 AF. The format analysis is shown in the following table:

Device address	Function code	Data length	Correction value	Checksum
01	03	02	00 64	B9 AF

In the response data, the first byte 01 represents the real address of the current device, and 00 6B is the register for the correction value of the first state variable. If the device has multiple parameters, the operation methods for other parameters are the same. Generally, temperature and humidity sensors have this parameter, while light sensors usually do not.

(2) Change the correction value

For example, if the current state variable value is too small and we want to increase its real - value by 1, the command to correct the current value by adding 100 is: 01 06 00 6B 00 64 F9 FD .

Device address	Function code	Register address	Target address	Checksum
01	06	00 6B	00 64	F9 FD

After the operation is successful, the device will return the information: 01 06 00 6B 00 64 F9 FD. After the change is successful, the parameter takes effect immediately.

Disclaimer

This document provides all information about the product, does not grant any license to intellectual property, does not express or imply, and prohibits any other means of granting any intellectual property rights, such as the statement of sales terms and conditions of this product, other issues. No liability is assumed. Furthermore, our company makes no warranties, express or implied, regarding the sale and use of this product, including the suitability for the specific use of the product, the marketability or the infringement liability for any patent, copyright or other intellectual property rights, etc. Product specifications and product descriptions may be modified at any time without notice.

Contact Us

Brand: XUNCHIP

Address: Room 208, Building 8, No. 215, Nandong Road, Baoshan District, Shanghai, Xinxin Brand Business Department

Chinese site: http://www.xunchip.com

International site: http://www.xunchip.com

SKYPE: soobuu

E-mail: sale@sonbest.com

Tel: 86-021-51083595 / 66862055 / 66862075 / 66861077