RS-FX-N01
wind transmitter
user's Guide
(485 type)

Issue:. V1. 0

Context

1. Introduction

1.1 Product Overview

RS-FX-N01 wind transmitter, compact and lightweight, easy to carry and assembly, a new design concept can effectively obtain information on wind direction, high-quality aluminum alloy housing, external spray plating process, has good anti-corrosion, anti- Erosion and other characteristics, to ensure long-term use of the transmitter without rust phenomenon, colleagues with the internal smooth bearing system to ensure the accuracy of information collection. Is widely used in greenhouse, environmental protection, weather stations, ships, docks, breeding and other environmental wind direction measurement.

1.2 Features

Range: 8 indicating a direction

Anti - electromagnetic interference treatment

Using high-performance imported bearings, rotating resistance is small, accurate measurement

Aluminum case, mechanical strength, high hardness, corrosion resistance, long-term use in outdoor rust

Equipment structure and weight have been carefully designed and distributed, the inertia is small, responsive

ModBus-RTU standard communication protocol, easy access,

1.3 Main Specifications

DC power supply (default)	10 ~ 30V DC
Transmitter circuit operating temperature	-20 ℃ ~ + 60 ℃, 0 % RH ~ 80% RH
Communication Interface	485 (modbus) protocol Baud Rate: 2400, 4800 (default), 9600 Data bit length: 8 Parity: none Stop bit length: 1 The default ModBus Address: 1 Support Function code: 03

parameter settings	Be configured with software provided by the configuration 485
Measuring range	8 indicate the direction of
Dynamic response speed	≤ 0.5s

2. Installation instructions

2.1 Equipment installation check

Equipment List:

■ transmitter equipment 1

■ four mounting screws

■ certificate, warranty card, service card, etc.

■ 12V / 2A 1 water supply station (optional)

■ USB to 485 (optional)

■ 485 terminating resistor (optional)

2.2 Interface Description

Wide voltage power input 10 ~ 30 V can. Note that the signal line 485 when the terminal A \ B two lines can not be reversed, the address bus between multiple devices must not conflict.

2 .3 electrical wiring

		Line color	Description
Electricity		brown	A positive power supply (10 ~ 30 V DC)
source		black	Negative power supply
through		yellow	485 -A
letter		blue	485 -B

2.4 Description field wiring

When a plurality of types of devices 485 connected to the same bus, the field wiring have certain requirements, refer to the specific data packet "485 field wiring device manual."

2.5 Installation

Flange-mounted wind direction sensors threaded flange firmly fixed to the lower portion of the tube flange, the chassis Ø65mm, open Ø6mm four mounting holes are circumferentially Ø47.1mm using only bolts to securely in the bracket On the whole set of instruments, to maintain the best level, to ensure the accuracy of wind direction data, flange connection easy to use, able to withstand greater pressure.

Attention to the installation, the direction of the aviation plug must be consistent with the north direction, so as to avoid measurement errors.

2.6 Considerations

1. Never disassemble, but can not touch the sensor core, so as to avoid damage to the product.

2. The device as far away from the interference power, in order to avoid inaccuracies in the measurement, such as inverter, motor, installation, disassembly must disconnect the power transmitter into the water cut-off can lead to irreversible changes in the transmitter.

3. Prevention of chemicals, oil, dust and other directly against the sensor, not the condensation, long-term use in extreme temperatures to prevent thermal shock.
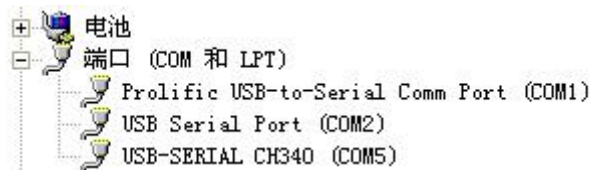
3. Configure the software installation and use

3.1 Software Selection

Open the data package, select "Debug Software" --- "485 parameter configuration

software" to find Open it.

3.2 parameter settings

①, select the correct COM port ("My Computer - Properties - Device Manager - Port"

inside view COM port), a figure below lists several different names drive 485 converter.

②, just take a single piece of equipment and power-up, click on the software testing baud

rate, the software will test the current baud rate and device address, the default baud rate

is 4800bit / s, the default address is0x01.

③, the address needs to be modified according to the use and the baud rate, and can query

the current state devices.

④, if the test is unsuccessful, recheck the wiring and equipment 485 driver installation.
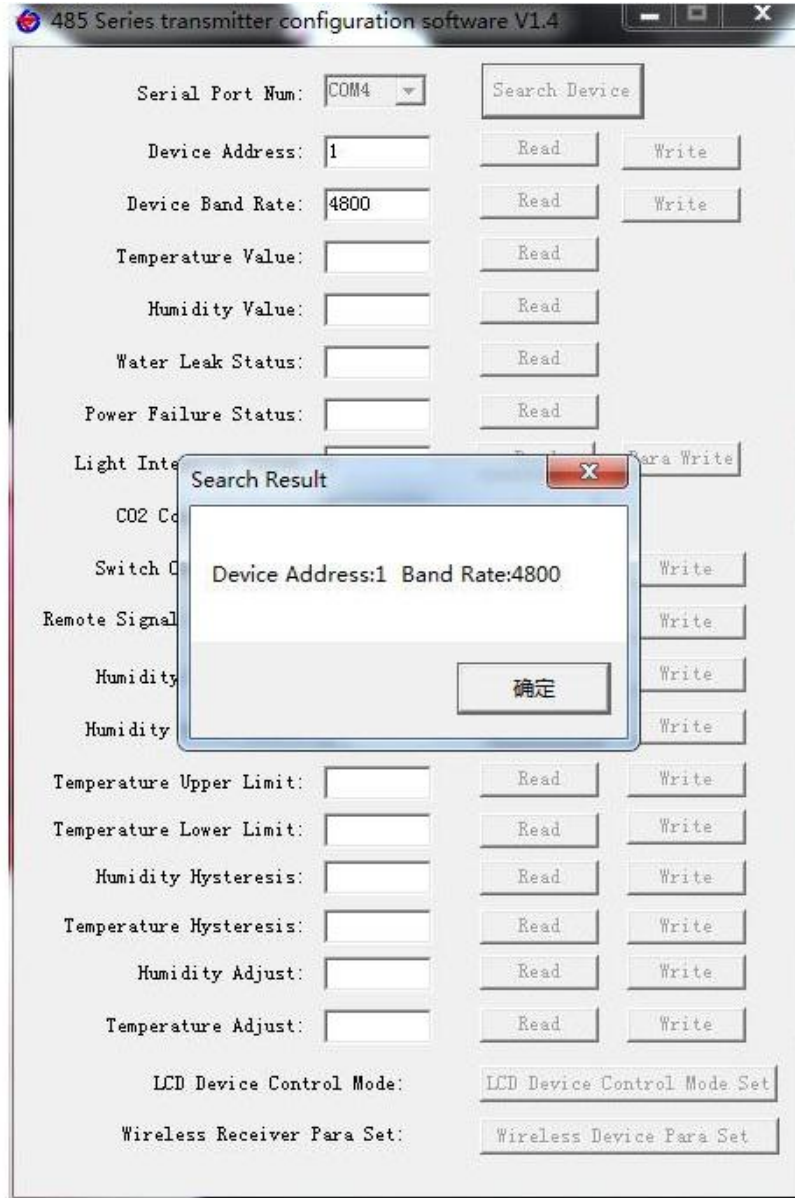
4. Communication Protocol

4.1 The basic parameters of Communications

Ed code	8-bit binary
Data bits	8
Parity bit	no
Stop bit	1
Error	CRC (cyclic redundancy code)

checking	
Baud rate	2400bit / s, 4800bit / s, 9600 bit / s can be set, the default setting is 48 00bit / s

4.2 Frame format definition data

Using M odbus - RTU communication protocol, in the following format:

Initial structure ≥ 4 byte time

address code = 1 byte

function code = 1 byte

Data area = N bytes

Error checking = 16-bit CRC

End structure ≥ 4 byte time

Address code: for the address of the transmitter, the communication network is the only (factory default 0x01).

Function Code: The host command functions such directions, the transmitter has used only the function code 0x03 (read data register).

Data area: data area is the specific communication data, note data of 16bits endian!

CRC code: two-byte checksum.

Host query frame structure:

address code	function code	Register start address	Register length	Check code low	Check the code high
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Slave response frame structure:

address code	function code	Valid bytes	Data area	Second data area	The first data region N	Check code
1 byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes	2 bytes

4.3 Register Address

Register address	PLC or configuration address	content	operating
0000 H	40001	Wind (0-7 files) Upload data is true	Read only
0001 H	40002	Direction (0-360 °)	Read

		Upload data is true	only

4.4 value corresponding conversion relationships

Acquiring the value (0-7 position)	Acquisition value (0-360 °)	Corresponding direction
0	0 °	North wind
1	45 °	Northeast wind
2	90 °	Dongfeng
3	135 °	Southeast wind
4	180 °	south wind
5	225 °	Southwest wind
6	270 °	Westerly
7	315 °	Northwest wind

4.5 protocol examples and explanation

Example: the reading direction of the device address 0x01

Inquiry frame:

address code	function code	Start address	Data length	Check code low	Check the code high
0x 01	0x0 3	0x00 0x00	0x00 0x0 2	0x C4	0x 0B

Answer frame: (E.g., read direction (0-7 speed) of 2, (0-360 °) is 90 °)

address code	function code	Returns the number of valid bytes	wind direction (0-7 files)	wind direction (0-360 °)	Check code low	Check the code high
0x 01	0x0 3	0x0 4	0x0 0 0x 02	0x 00 0x 5A	0x DB	0x C8

Wind calculation:

(0-7 speed): 0002 H (hexadecimal) = 2 => direction = Dongfeng

(0-360 °): 005A H (hex) = 90 => = east direction

5. Common Problems and Solutions

5.1 device can not connect to a PLC or PC

possible reason:

1) computer has multiple COM ports, port selection is not correct.

2) device address error, or there is a duplicate device address (factory default all 1).

3) The baud rate, parity, data bits, stop bits error.

4) The master polling interval and response wait time is too short, it is required more than 200ms provided.

5) 485 has turned off, or A, B line reversed.

6) the number of devices or the wiring too long, to be near the power supply, plus booster 485, while increasing 120 Ω termination resistor.

7) USB drive switch 485 is not installed or damaged.

8) equipment damage.

6. Contact

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7. Document History

V1.0 documents created.

8. Dimensions