RS-ZS-*-FL
Long rod noise transmitter (485 / TTL type) user's manual

Document version：V1.1

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1. product description

1.1product description

RS-ZS-*-FLNoise sensor is a high-precision sound measuring instrument with a range of up to 30dB ~ 120dB, which meets the daily measurement needs. It is widely used in various fields such as home, office, workshop, automobile measurement, industrial measurement and so on.

1.2Features

This product uses a high-sensitivity condenser microphone with stable signals and high accuracy. With wide measuring range, good linearity, easy to use, easy to install, long transmission distance。

1.3Main Specifications

DC powered (default)	10~30V DC	
power	0.1W	
Transmitter circuit operating temperature	-20℃~+60℃，0%RH~80%RH	
output signal	TTL Output	Output voltage: ≤0.7V at low voltage, 3.25 ~ 3.35V at high voltage Input voltage: ≤0.7V at low voltage, 3.25 ~ 3.35V at high voltage
	RS-485Output	ModBus-RTU letter of agreement
UART or RS-485 communication parameters	N 8 1	
Resolution	0.1dB	
Measuring range	30dB~120dB	
Frequency Range	20Hz~12.5kHz	
Response time	≤3s	
stability	Less than 2% in the life cycle	
Noise accuracy	± 0.5dB (at reference pitch, 94dB @ 1kHz)	

1.4product model

RS-				Company code
	ZS-			Noise transmitter
		N01-		485 interface output
		TTL-05		TTL output (5V DC power supply)

		TTL-12		TTL output (10-30V DC power supply)
			FL	Flange mounting

Note: Select the power supply mode of the TTL model and select the model. No special instructions are given below.

2. Equipment installation instructions

2.1 Check before equipment installation

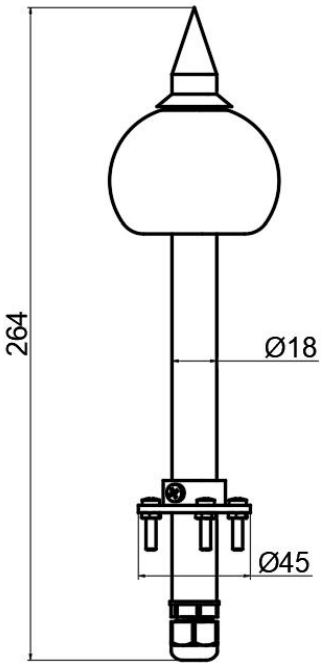
Equipment List:

1.One transmitter device (with mounting flange)

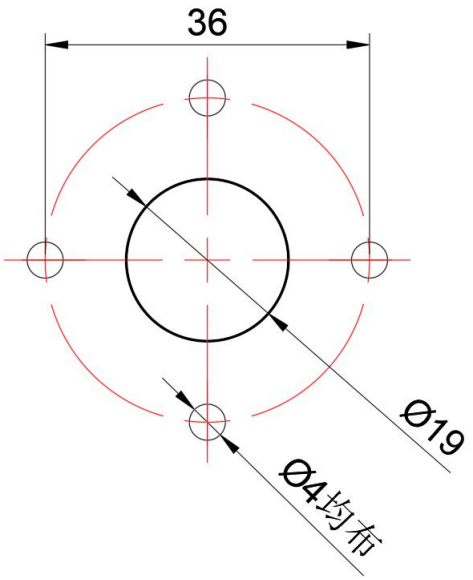
2.A package of mounting screws

3. Qualification certificate and warranty card

2.2Equipment size

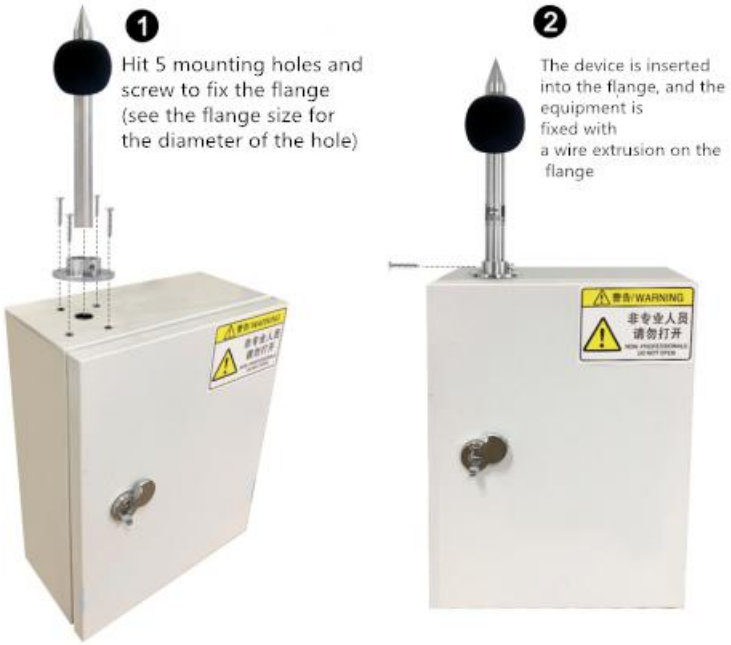


Equipment dimension drawing (unit: mm)



Installation hole map (unit: mm)

2.3Installation method



2.4 Interface Description

When wiring the 485 signal line, pay attention that the two lines A and B cannot be reversed, and the addresses between multiple devices on the bus must not conflict.

2.5 Electrical wiring

485 output signal wiring：

	Thread color	Description
power supply	brown	Power supply（10-30V DC）
	black	Negative power
Communication	yellow	485-A
	blue	485-B

TTL Output signal wiring

	Thread color	Description
power supply	brown	Power supply (power supply according to selection)
	black	Negative power
Communication	yellow	Serial data transmission (≤0.7V at low voltage, 3.25 ~ 3.35V at high voltage)
	blue	Serial data reception (≤0.7V at low voltage, 3.25 ~ 3.35V at high voltage)

2.6Precautions

1. The user is not allowed to dismantle by himself, nor touch the sensor core, so as not to cause damage to the product.

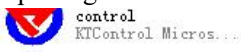
2. Try to stay away from high-power interference equipment to avoid inaccurate measurement,

such as inverters, motors, etc. When installing and removing the transmitter, you must first disconnect the power supply, and prohibit water from entering the transmitter to cause irreversible changes.

3. To prevent chemical reagents, oil, dust and other direct damage to the sensor, do not use it for a long time in the environment of condensation, extreme temperature, and prevent cold and heat shock.

3.Configuration software installation and use

3.1Software selection

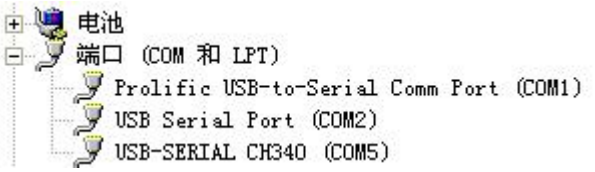
Open the package and select "Debugging Software" --- "485 Parameter Configuration Software" and find 

Just open

Note: When using this configuration software to change the address and baud rate, only one device can be connected.

3.2 parameter settings

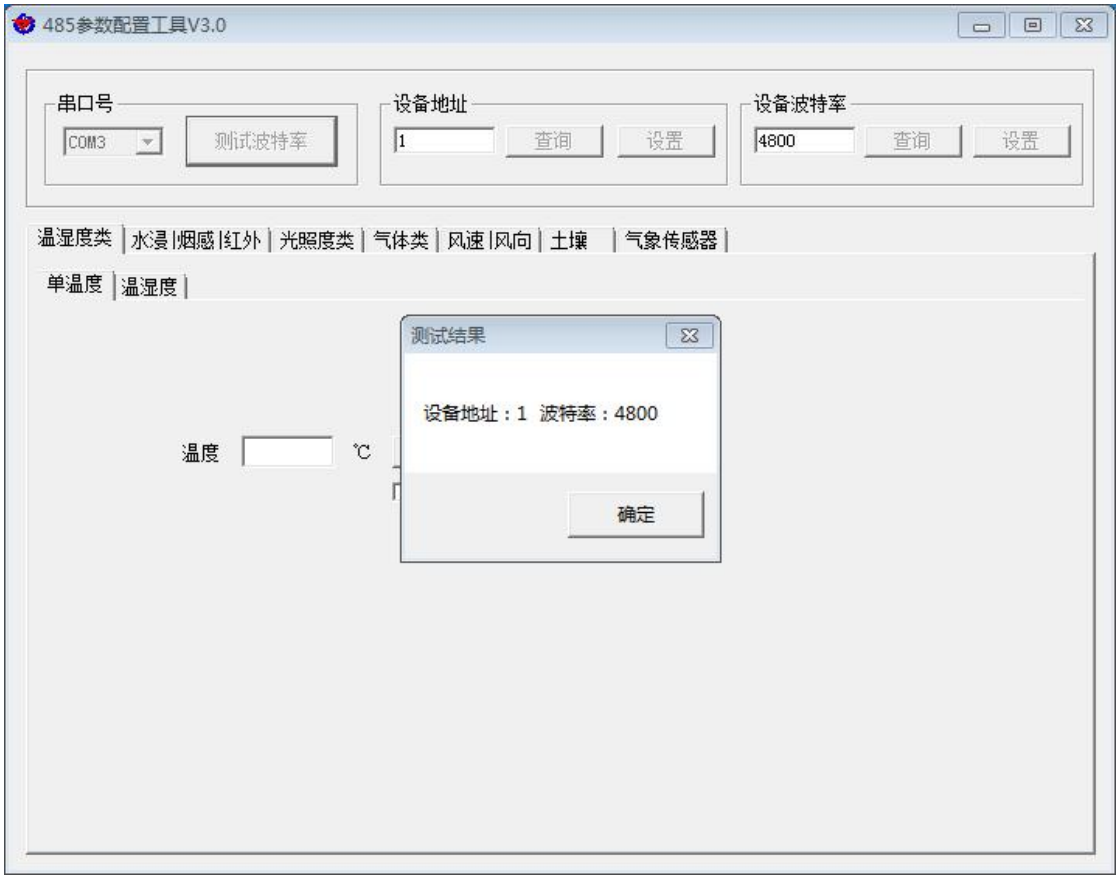
① Select the correct COM port (check the COM port in "My Computer-Properties-Device Manager-Port"). The following figure lists several different 485 converter driver names.



② Connect only one device and power on. Click the software to test the baud rate. The software will test the baud rate and address of the current device. The default baud rate is 4800bit / s and the default address is 0x01.

③ Modify the address and baud rate according to the needs of use, and can query the current function status of the device.

④ If the test is unsuccessful, please recheck the equipment wiring and 485 driver installation.



4. letter of agreement

4.1 Basic communication parameters

Code	8-bit binary
Data bit	8-bit
Parity bit	NO
Stop bit	1-bit
Error checking	CRC（Redundant cyclic code）
Baud rate	2400bit / s, 4800bit / s, 9600 bit / s can be set, the factory default is 4800 bit / s

4.2 Data frame format definition

TTL interface or 485 interface adopts Modbus-RTU communication protocol, the format is as follows:

Initial structure ≥ 4 bytes of time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 16-bit CRC

Ending structure ≥ 4 bytes of time

Address code: It is the address of the transmitter, which is unique in the communication network (factory default 0x01).

Function code: The function instruction of the command issued by the host, this transmitter only uses the function code 0x03 (reading register data).

Data area: The data area is the specific communication data. Note that the high byte of the 16bits data comes first!

CRC code：Two-byte check code。

Host Inquiry Frame Structure：

address code	function code	Register start address	Register length	Low check bit	Check code high
1byte	1byte	2byte	2byte	1byte	1byte

Slave response frame structure：

address code	function code	Number of valid bytes	Data area	Data area 2	Data N area	Check code
1byte	1byte	1byte	2byte	2byte	2byte	2byte

4.3 Register address

Register address	PLC or configuration address	content	operating	Definition
0000 H	40001	Instantaneous noise value	Read-only	10x upload
07D0 H	42001 (Decimal)	Device address	Read and write	1~254（Factory default 1）
07D1 H	42002 (Decimal)	Device baud rate	Read and write	0 for 2400 1 for 4800 2 for 9600

4.4 Communication protocol example and explanation

Example: Read the noise value of device address 0x01

Inquiry frame：

address code	function code	starting address	Data length	Low check bit	Check code high
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Response frame: (for example, the current noise is 71.3dB)

address code	function code	Returns the number of valid bytes	Current noise value	Low check bit	Check code high
0x01	0x03	0x02	0x02 0xC9	0x79	0x72

Noise calculation:

Current noise: 02C9H (hexadecimal) = 713 => noise = 71.3dB

5. Common problems and solutions

Device cannot be connected to PLC or computer

possible reason:

1) The computer has multiple COM ports, and the selected port is incorrect.
2) The device address is wrong, or there are devices with duplicate addresses (the factory defaults are all 1).
3) Baud rate, check mode, data bit, stop bit error.
4) The host polling interval and waiting for response time are too short, both need to be set above 200ms.
5) The 485 bus is disconnected, or the A and B wires are reversed.
6) If there are too many devices or the wiring is too long, you should supply power nearby, add a 485 booster, and increase the 120Ω terminal resistance at the same time.
7) The USB to 485 driver is not installed or damaged.
8) The equipment is damaged.

6. contact details

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Post code: 250101

Phone: 400-085-5807

Website: www.renkeer.com

Cloud platform address: en.0531yun.cn Or: eniot.0531yun.cn

Web QR:

7. Document history

V1.0 document creation.

V1.1 adds TTL selection.