RN-ZS-N01-*

Specification for noise transmitter (485)

Document version：V1.0


噪声传感器
Noise Sensor

product list

1. Product introduction

1.1 product overview

RN- ZS - N01 - * noise the voice of the sensor is a precision measuring instrument, the range of up to 30 db and 120 db, meet the demand of daily measurement, is widely used in home, office, workshop, a variety of fields such as automotive, and industrial measurement. The sensor input power, inductive probe, signal output three parts completely isolated. Safe and reliable, beautiful appearance and convenient installation.

1.2 features

This product adopts the high sensitivity capacitor microphone, the signal is stable, the precision is high. It has the characteristics of wide measuring range, good line shape, convenient use, easy installation and transmission distance.

1.3 main technical indicators

DC power (default)	10~30V DC
Power	0.4W
Working temperature transmitter circuit	-20℃~+60℃，0%RH~80%RH
Communication interface	485 communication (modbus) protocol Baud rate: 2400, 4800 (default), 9600 Data bit length: 8 bits Parity check method: no Stop bit length: 1 bit Default ModBus communication address: 1 Support function: 03
Parameter Settings.	The configuration software provided is configured through the 485 interface
Resolution	0.1dB
Measuring range	30dB~120dB
Frequency range	20Hz~12.5kHz
Response time	⩽3s
Stability	The use cycle is less than 2%
Noise accuracy	Plus or minus 0.5dB (in reference, 94dB @1khz)

1.4 product selection

RN-					Pegatron company code
	ZS-				Noise transmitter
		N01-			485 interface output
			BYH		screen
			2		The king word shell
				EX	Fixed code

2. Equipment installation instructions

2.1 inspection before installation

Equipment list:

- transmitter device 1
- 2 (screen box)/self tapping screw 2, expansion plug 2 (king word shell)
- warranty card, after-sales service card, etc
- 12V/2A waterproof power supply 1 (optional)
- USB transfer 485 (optional)
- 485 terminal resistance (optional)

2.2 interface description

Wide voltage source input 10~ 30V. Note that the two lines of A\B cannot be connected when the signal line is connected, and the address of multiple devices on the bus can not conflict.

2.3 electrical wiring

	Line color	Specification
Power	Brown	Power supply（10~30V DC）
	Black	The power negative
Communication	Yellows	485-A
	Blue	485-B

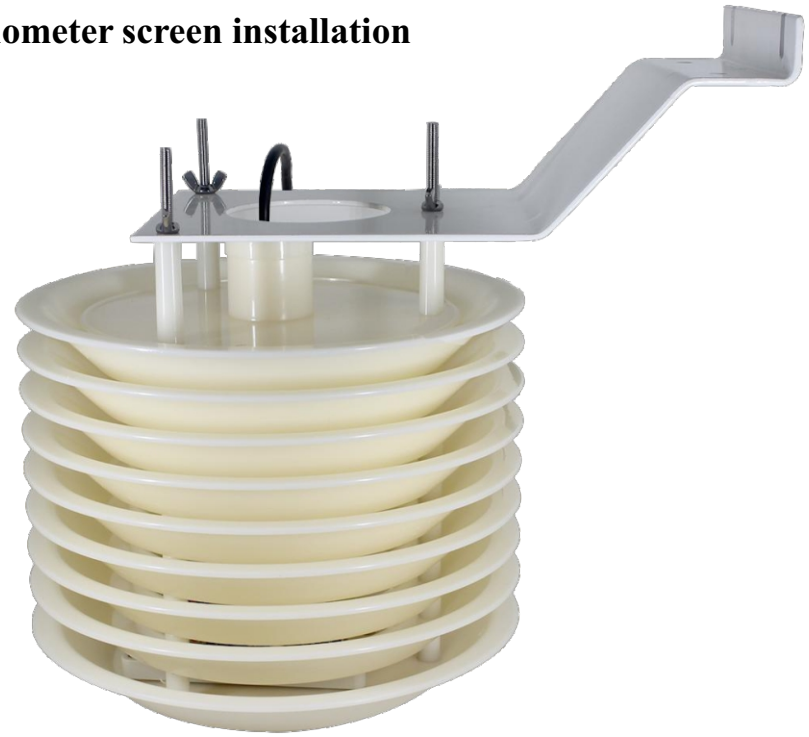
2.4 field wiring instructions

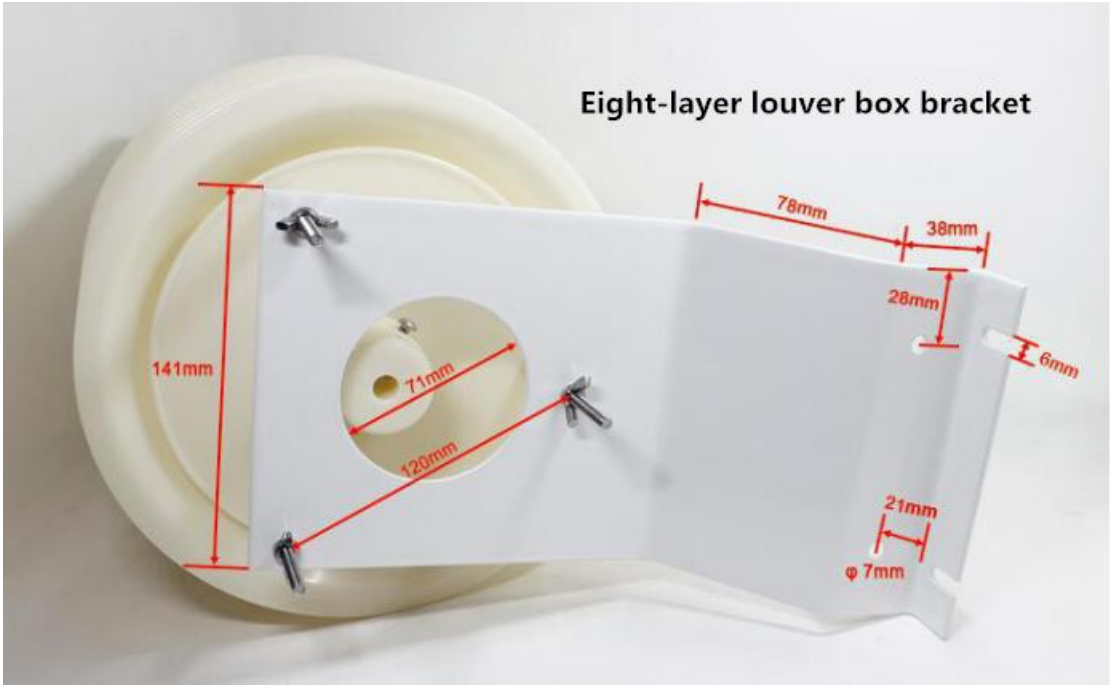
When multiple 485 devices are connected to the same bus, there are certain requirements for the field wiring. Please refer to the "485 equipment field wiring manual" in the information package.

2.5 installation mode

1. King's shell installation

2.Thermometer screen installation





2.6 considerations

1. Users shall not disassemble themselves or touch the core of the sensor so as not to cause damage to the product.
2. As far as possible away from high-power jamming equipment, lest cause inaccurate measurement, such as frequency converter, motor, etc., must first disconnect the power supply

when installation, remove the transmitter, ban transmitter inside the water into the can lead to irreversible changes.

3. Prevent chemical reagents, oil, dust and other direct attack sensors. Do not use them for long term and cold thermal shock in the environment of condensation and extreme temperature.

3. Configure software installation and use

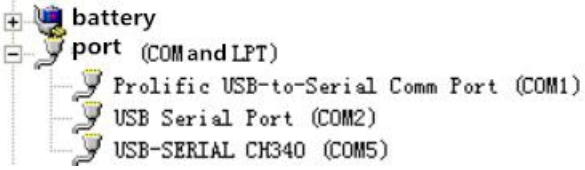
3.1 software selection

Open the package, select "debug software" - "485 parameter configuration software", find 

RN Tools Configuration Software Open it.

3.2 parameter setting

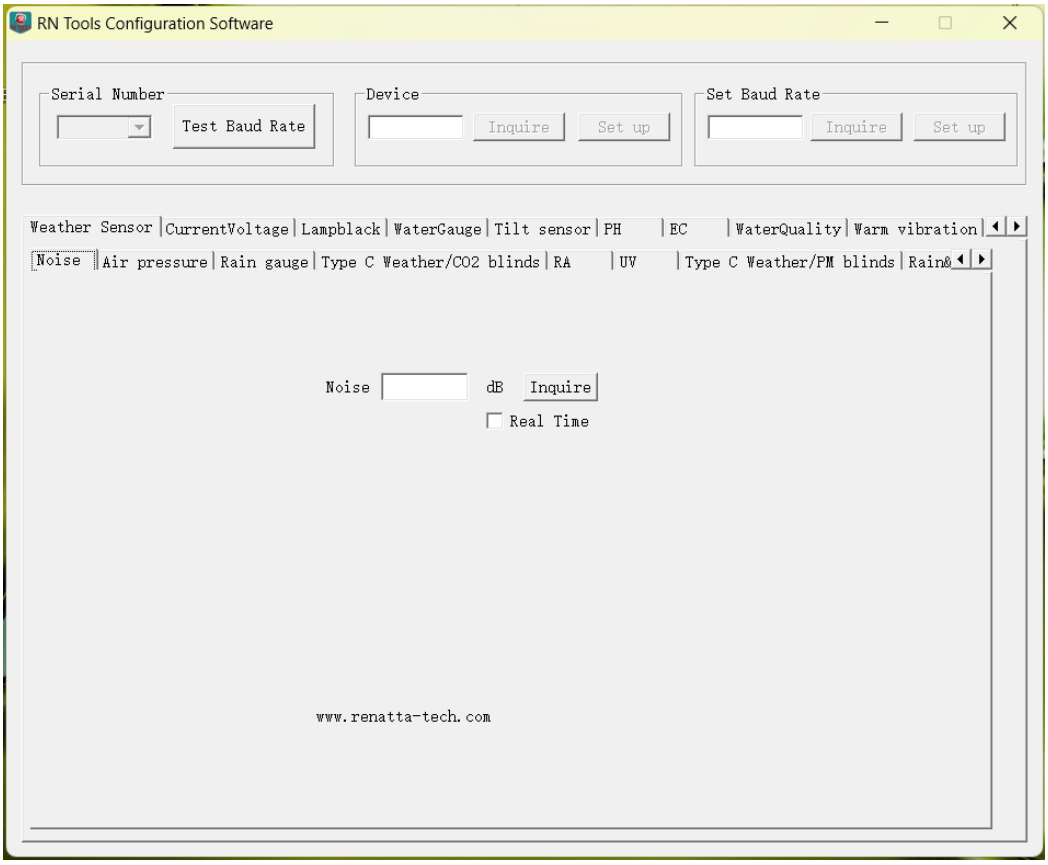
Select the correct COM port (" my computer -- attribute-device manager -- port "to see the COM port), and the following figure lists the driver names of several different 485 converters.



The baud rate of the current device is tested. The default port rate is 4800bit/s, and the default address is 0x01.

To modify the address and baud rate according to the usage, and to query the current status of the device.

If the test is not successful, please re-check the equipment wiring and 485 drive installation.



4. Communication protocol

4.1 basic communication parameters

Code.	8-bit binary
Data bits	eight
Parity bit	nothing
Stop bit	1
Error checking	CRC (redundant loop code)
Baud rate	2400bit/s, 4800bit/s, 9600 bit/s can be set, the factory default is 4800bit/s

4.2 data frame format definition

Using modbus-rtu communication protocol, the format is as follows:
The initial structure is greater than 4 bytes
Address code = 1 byte
Function code = 1 byte
Data area = N bytes
Error check = 16 bit CRC code
The end structure is greater than 4 bytes
Address code: the address of the transmitter is unique in the communication network (factory default 0x01).
Function code: the instruction function of the host machine. This transmitter is only used to the function code 0x03 (reading register data).
Data area: data area is the specific communication data, notice the 16bits data high byte in front!
CRC code: two - byte checksum.
Frame structure:

Address code	Function code	Register start address	Register length	Check code. Low	Check code. High
1 byte	1 byte	2 byte	2 byte	1 byte	1 byte

From machine reply frame structure:

Address code	Function code	Effective number of bytes	The data area	Second data area	Area N data area	Check code
1 byte	1 byte	1 byte	2 byte	2 byte	2 byte	2 byte

4.3 register address

Register address	PLC or configuration address	content	operation
0000 H	40001	The instantaneous noise value is 10 times the real value	read-only

4.4 example of communication protocol and interpretation

Example: read the noise value of the device address 0x01

Information frame:

Address code	Function code	Register start address	Register length	Check code. Low	Check code. High
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

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

Address code	Function code	Returns the number of valid bytes	Current noise value	Check code. Low	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

The device cannot be connected to a PLC or computer

1) the computer has more than one COM, and the choice is not correct.

2) equipment address error, or the device that has the address duplicate (all the factory defaults to 1).

3) baud rate, check mode, data bit, stop bit error.

4) the host polling interval and waiting response time are too short, and the requirements are set at more than 200ms.

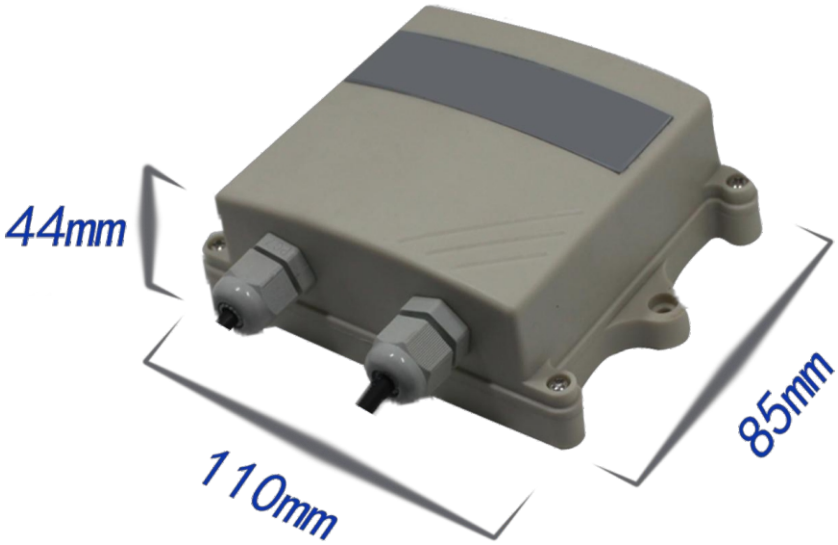
5) the 485 bus is disconnected, or A and B are connected.

6) equipment wiring is too long, or too much should be nearby power supply, plus 485 enhancer, at the same time an increase of 120 Ω terminal resistance.

7)USB 485 drive is not installed or damaged.

8) equipment damage.

Size: 100 x 85 x 26mm



Screen size