ATO

Long Pole Noise Transmitter

（485 /TTL Type）

User Manual

Catalogs

1. Products

1.1 Product Overview

Noise sensor is a high-precision sound measurement instrument with a range of up to 30dB~130dB, which meets the daily measurement needs and is widely used in various fields such as home, office, workshop, automotive measurement, industrial measurement and so on.

1.2 Functional Features

This product adopts high sensitivity condenser microphone with stable signal and high precision. It has the features of wide measuring range, good linearity, easy to use, easy to install, and long transmission distance.

1.3 Main technical indicators

DC power supply (default)	10~30V DC	
Power	0.1W	
Transmitter Circuit Operating Environment	-20℃~+60℃，0%RH~95%RH （non-condensation）	
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-485 Output	ModBus-RTU communications protocol
UART or RS-485 Communications Parameter	N 8 1	
Resolution	0.1dB	
Measurement Range	30dB~130dB	
Frequency Range	20Hz~12.5kHz	
Response Time	⩽3s	
Stability	Withinthelifecycle<2%	
Noise Accuracy	±0.5dB（In Reference Intonation，94dB@1kHz）	

2. Equipment Installation Instructions

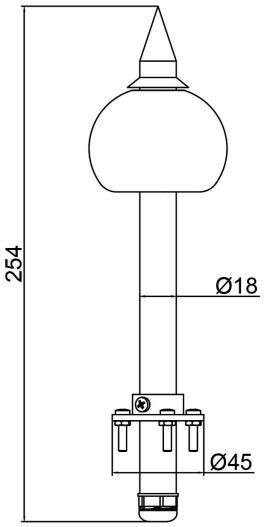
2.1 Pre-installation inspection of equipment

List of equipment：

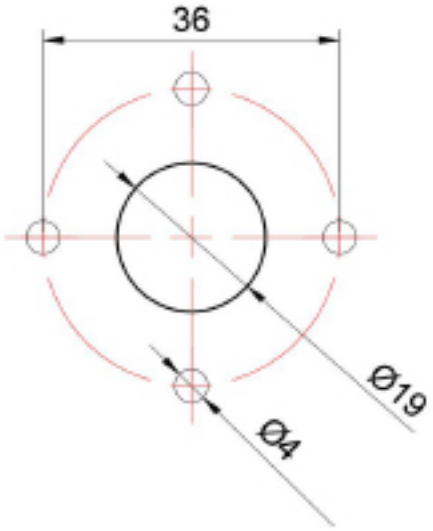
■Transmitter unit 1 unit (with mounting flange)

■Pack of mounting screws

2.2 Equipment Size

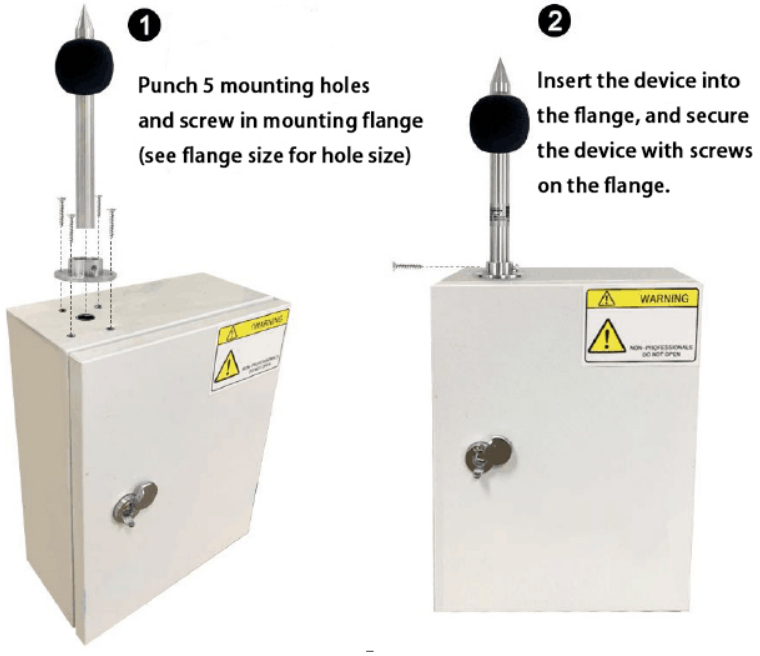


Equipment dimension drawing (unit: mm)



Mounting Hole Location Diagram (Unit: mm)

2.3 Installation



2.4 Interface Description

When wiring the 485 signal line, make sure that the A and B lines are not reversed and that the addresses of multiple devices on the bus do not conflict with each other.

2.5 Electrical wiring

485 Output signal wiring:

	Thread Colour	Clarification
Power Supply	Brown	Power Positivity（10-30V DC）
	Black	Power Negative

Correspond	yellow	485-A
	blue	485-B

TTL Output signal wiring

	Thread Colour	Clarification
Power	Brown	Power positive (power supply as selected)
	Black	Power Negative
Correspond	yellow	Serial Data Transmission (≤0.7V at low voltage, 3.25~3.35V at high voltage)
	blue	Serial Data Receiving (≤0.7V at low voltage, 3.25~3.35V at high voltage)

2.6 Caveat

1. Users are not allowed to disassemble by themselves, not to mention touching the sensor core, so as not to cause damage to the product.

2. Try to stay away from high-power interference equipment, so as not to cause inaccurate measurements, such as frequency converters, motors, etc., installation and disassembly of the transmitter must be disconnected from the power supply first, prohibited transmitter inside the water into the irreversible changes can lead to.

3. Prevent chemical reagents, oil, dust and other direct infringement of the sensor, do not condensation, limit the temperature of long-term use of the environment, and prevent cold and heat shock.

3. Configuration software installation and use

3.1 Software Selection

Open the package, select "Commissioning Software" --- "485 Parameter Configuration Software", find the

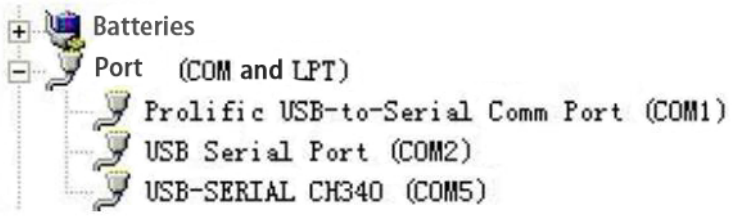
open it.

Note: Only one device can be connected when using this configuration software to change the address and baud rate.

3.2 Parameter Setting

① Select the correct COM port ("My Computer - Properties - Device Manager - Ports" for COM ports).

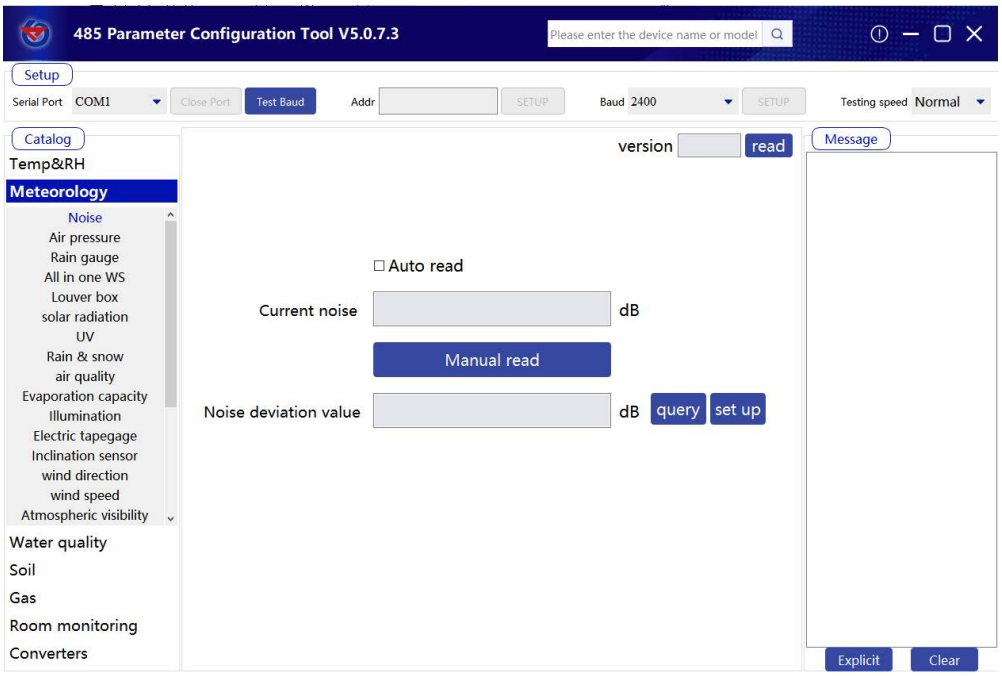
The following chart lists the driver names for several different 485 converters.



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

③ Modify the address and baud rate according to the usage needs, and at the same time, you can query the current functional status of the device.

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



4. Communications Protocol

4.1 Basic parameters of communication

Code	8-bit binary
Data Bit	8-bit
Parity Check Bit	Not
Stop Bit	1 bit
Error Checking	CRC（redundant cyclic code）
Baud	2400bit/s、4800bit/s、9600 bit/s settable,factorydefaultis4800bit/s

4.2 Data Frame Format Definition

The TTL or 485 interface uses the ModBus-RTU communication protocol in the following format:

Initial structure ≥ 4 bytes in time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 16-bit CRC code

End structure ≥ 4 bytes of time

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

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

Data area: Data area is specific communication data, note that 16bits data high byte in front!

CRC code: two-byte check code.

The host asks for the frame structure:

Address Code	Function Code	Register Starting Address	Register Length	Check Digit Low Bit	Check Digit High
1 byte	1 byte	2 byte	2 byte	1 byte	1 byte

Slave Answer Frame Structure:

Address Code	Function Code	Effective Byte Count	Data Area I	Data Area II	Data Area N	Check Digit
1 byte	1 byte	1 byte	2 byte	2 byte	2 byte	2 byte

4.3 Register Address

Register Address	PLC or Configuration Address	Element	Operation	Description of Definitions
0000 H	40001	Transient Noise Figure	Read-only	Expanded 10x upload
07D0 H	42001 (decimal system)	Device Address	Fill out or in	1~254（Factory default 1）
07D1 H	42002 (decimal system)	Device Baud Rate	Fill out or in	0mean2400 1mean4800 2mean9600

4.4 Communication protocol examples and explanations

Example: Read the noise value at device address 0x01.

Query Frame：

Address Code	Function Code	Starting Address	Data Length	Check Digit Low Bit	Check Digit High
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Answer Frame: (e.g. reads current noise at 71.3 dB)

Address Code	Function Code	Returns the number of valid bytes	Current Noise Level	Check Digit Low Bit	Check Digit High
0x01	0x03	0x02	0x02 0xC9	0x79	0x72

Noise calculation:

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

5. Frequently Asked Questions and Solutions

Device cannot connect to PLC or computer

Probable Cause:

1) The computer has multiple COM ports and the port selected is incorrect.
2) The device address is incorrect, or there are devices with duplicate addresses (the factory default is 1 for all).
3) Baud rate, parity mode, data bit, stop bit error.
4) The host polling interval and wait for answer time are too short and should be set to more than 200ms.
5) The 485 bus is disconnected or the A and B wires are reversed.
6) If the number of devices is too many or the wiring is too long, the power should be supplied nearby, with a 485 booster, and a 120Ω terminating resistor should be added.
7) USB to 485 driver is not installed or is damaged.
8) Equipment damage.