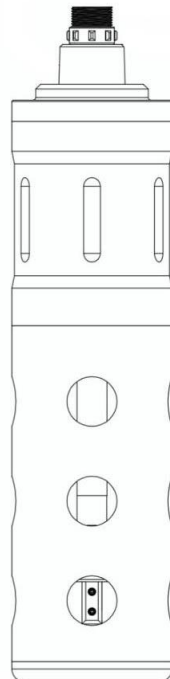




Daruifuno

NH4-N Ammonia Nitrogen Sensor

Basic User Manual



Model: NH351

Version 1.0

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Guarantee

Our company seriously warrants each of the instrument for one year (12 months) from the specific date of delivery. Consumables and consumable parts in the equipment are not covered by the warranty. The terms of this warranty shall not apply if damage to the instrument occurs beyond the warranty period, or in the opinion of the company, the breakage or destruction of the instrument is due to improper use, lack of maintenance, improper installation, improper modification, abnormal environmental conditions, etc. The company's obligation under this warranty is limited to providing replacement or repair of this product, as the case may be. The product must be thoroughly cleaned to remove any contaminated chemicals before it is accepted for replacement or repair. Our obligations shall not exceed the price of the product itself. In no event shall the company be liable for damage caused by incidental or consequential damages, whether to persons or objects. The company shall not be liable for any other loss, damage or expense of any kind, including economic loss resulting from the installation, use or improper use of the product.

- For details, please refer to the product's quality promise with the product, and keep this manual and the quality promise properly.

Chapter 1 Specification

Product specifications are subject to change without notice.

Measuring principle	Ion selective electrode method
Ammonia nitrogen range	0-100mg/L NH ₄ -N
Ammonia Nitrogen Accuracy	±10% of measured value or ±0.5mg/L, whichever is greater, depends on calibration
Ammonia resolution	0.01mg/L
pH range	4-10
pH accuracy	±0.1pH
pH resolution	0.01
Calibration method	1 or 2 points
Operating temperature	0 to 50°C
Work pressure	≤1bar
waterproof level	IP68
Power requirements	9-24VDC, current <50mA (without cleaning brush)
Main material	POM
Shell size	64mm in diameter, 271mm in length
Connection	Bare wires or waterproof connector

Chapter 2 Basic Information

2.1 Security Information

Please read this manual completely before unpacking, installing and operating this equipment. Pay special attention to all precautions. Otherwise, it may cause serious personal injury to the operator or damage the equipment.

2.2 Overview

Online ammonia nitrogen sensor, no reagents, green and pollution-free, and can be monitored online in real time. Integrate ammonium ion, potassium ion (optional), pH and reference electrode, and automatically compensate potassium ion (optional), pH and temperature in the water.

It can be directly put into installation, which is more economical, environmentally friendly, convenient and quicker than traditional ammonia nitrogen analyzers. The sensor has a self-cleaning brush, which can prevent microorganisms from adhering, so that the maintenance period is longer and has excellent reliability. It adopts RS485 output and supports Modbus for easy integration.

Features

- Digital sensor, RS-485 output, support MODBUS
- No reagents, no pollution, more economical and environmentally friendly
- Automatically compensate for potassium ions (optional), pH and temperature in the water body
- With a self-cleaning brush, it can prevent organisms from attaching, and the maintenance period is longer

2.3 Dimensions

Dimensions: 64×271mm(ϕ ×L)

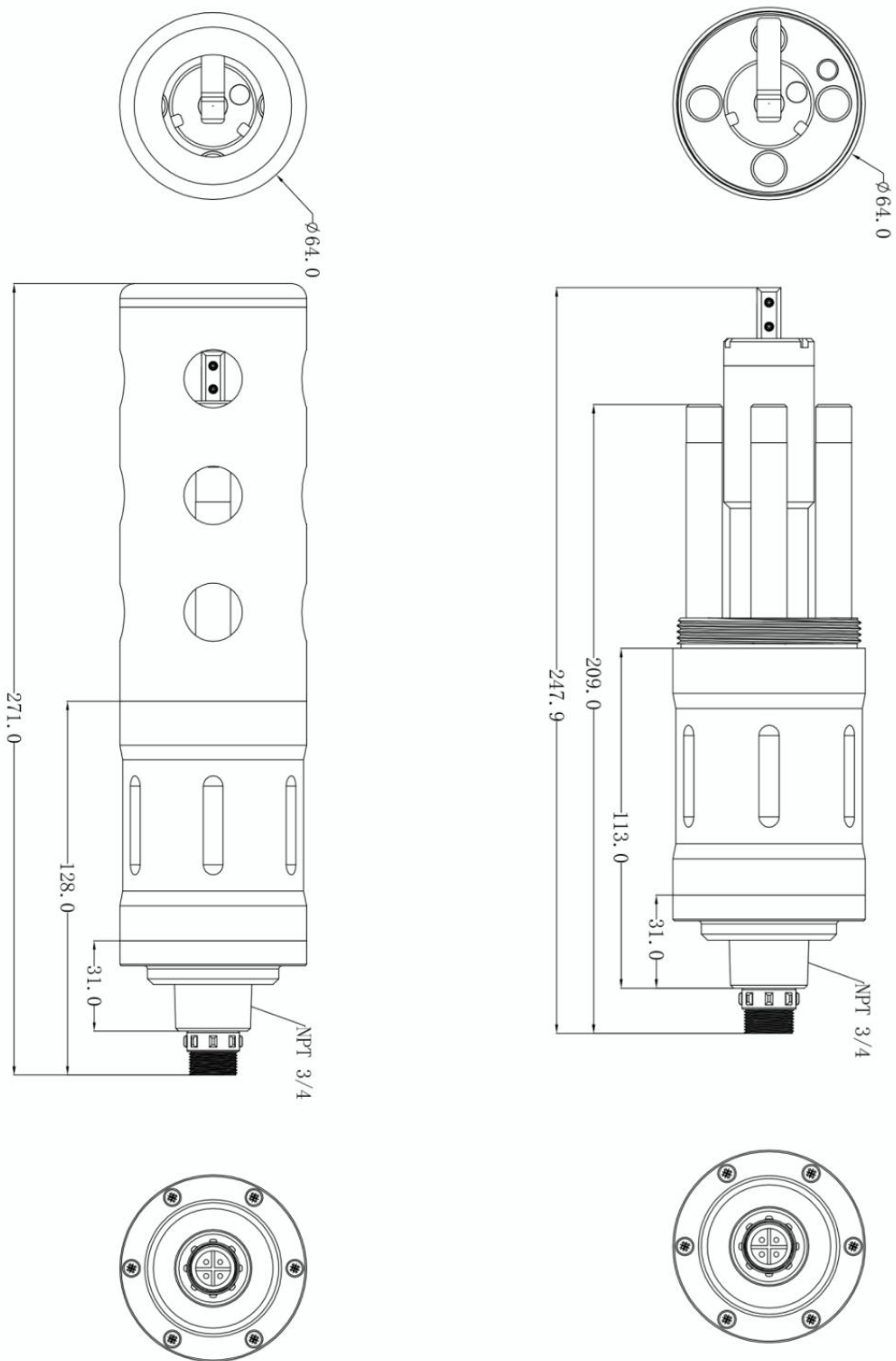


Figure 1 Dimensions of the sensor

Chapter 3 Installation

3.1 Configuration Table

Standard configuration	Quantity	Unit	Remarks
NH4 ammonia nitrogen sensor	1	PCS	
Cable	1	PCS	
Assemble the adapter	1	PCS	
Ammonium chloride standard solution	1	Bottle	1000 ppm
pH protection solution	1	Bottle	
Reference electrode protection solution	1	Bottle	
ISAB for Ammonium	1	Bottle	
Rubber protective cap	1	Set	

3.2 Preparation before Use

Remove the protective cover

Before installation, please carefully remove the protective cover of the ammonium ion electrode, reference electrode, and pH electrode, and keep the protective cover properly;

Probe cleaning and activation

- (1) Please rinse the electrode with deionized water (special attention, just rinse, do not wipe or brush);
- (2) The electrodes are all stored in the corresponding protection solution (Ammonium ion protection solution is 1ppm ammonium chloride standard solution), so the new product does not need to be activated when it is opened for the first time;
- (3) If the electrode is dry for more than 4 hours, it needs to be activated after the electrode is tested. Activation method: soak the sensor electrode in the 1ppm ammonium chloride standard solution for more than 4 hours.

3.3 Sensor Installation

Wiring and power supply

- (1) The female connector of the sensor cable and the male connector of the sensor must be screwed tightly to avoid water seepage;
- (2) Do not use the sensor cable to hoist the sensor! It is recommended to install a cable protective cover to ensure good power supply and water tightness of the cable.
- (3) Make sure that the power supply voltage is accurate before powering on!

Sensor installation

- (1) The tail part is 6-point screw fixed installation, housing clamp-enclosed installation; (Note: The sensor needs to be installed vertically according to the electrode downward direction, not horizontal or even electrode upwards);
- (2) Considering the influence of water level, the sensor should be installed below the lowest water level line 30cm (exposure to the air measurement will damage the electrode), and it is recommended that the installation depth not exceed 2 meters to facilitate subsequent disassembly and maintenance;
- (3) The sensor needs to be fixedly installed to avoid the probe bumping caused by water flow and other factors.

3.4 Sensor Wiring

The sensor is correctly connected as defined in the table below.

Wire Color	Red	Black	White	Green
Terminal Definition	+12V DC	Power ground	RS485 data A (+)	RS485 data B (-)
Instrument Terminal Symbols	V+	V-	AS	BS

Chapter 4 Maintenance

Although the sensor is equipped with a self-cleaning brush as standard, bad working conditions will still cause the sensor to be contaminated. In order to ensure accurate measurement, cleaning is very important. Regular cleaning of the sensor is helpful to the stability of the data.

4.1 Maintenance Cycle

The user needs to decide the maintenance cycle (cleaning, calibration) according to the actual working conditions. Only the recommended maintenance cycle is listed below.

Maintenance work	Maintenance frequency
Visual inspection	Per month
Check calibration	Monthly (according to the environmental conditions of use)
Replace the pH electrode	Every year (according to the environmental conditions of use)

4.2 Maintenance Method

Sensor outer surface: Rinse the outer surface of the shell with tap water and use a soft-bristled brush for scrubbing. If it is dirty, dip it in soapy water for scrubbing;

Check the cable of the sensor: Check whether the cables and connectors are damaged, and check whether the power supply of the cables is normal;

Electrode cleaning and precautions (important)

- (1) The surface of the electrode cylinder can be scrubbed with a soft brush, but do not touch the ammonium ion-sensitive membrane;
- (2) The pH and reference electrode membrane head, after being rinsed with tap water, can be gently scrubbed with a dust-free cloth or soft brush;
- (3) The sensitive membrane of the ammonium ion electrode cannot be scratched or scrubbed! Only use tap water (preferably deionized water) to rinse;
- (4) After the sensor is cleaned, if it is not calibrated, it can be directly installed back and used; if it is to be calibrated, the probe needs to be rinsed and wiped dry with deionized water, and the sensor housing and electrode cylinder can be wiped with a dust-free cloth. Dry, do not wipe the electrode membrane head, it is recommended to blow dry or gently wipe dry with absorbent paper!
- (5) During calibration, each step of standard solution calibration needs to repeat the deionization and cleaning electrode process to avoid contamination of the standard solution.

Sensor preservation: When the sensor is not in use, the sensor should be cleaned and stored properly. Pay special attention to the storage of the electrode. The pH and reference electrode use the corresponding protection solution provided by our company; the concentration of the ammonium ion protection solution is 1ppm ammonium ion standard solution.

Replacement of consumables and wearing parts

- (1) Ammonium ion, reference electrode and pH electrode are all consumable parts, please replace in time according to the actual situation;
- (2) It is recommended to replace the cleaning brush every 3 months (if the environment is bad, the replacement cycle is recommended to be reduced);
- (3) The cleaning brush seal ring is guaranteed for one year, and it is recommended to send it back to our company for replacement every year;



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