



## Datasheet

Ammonia Nitrogen Electrode

SUP-ADI3050

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E-mail: [info@supmea.com](mailto:info@supmea.com)

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## Datasheet

### Ammonia Nitrogen Electrode SUP-ADI3050

SUP-ADI3050 Online ammonia nitrogen electrode, no reagent, green and pollution-free, real-time online monitoring. Ammonium ion electrode, pH electrode and reference electrode (potassium ion optional) are equipped as standard. During the measurement of ammonia and nitrogen in water, automatic pH and temperature compensation makes the measurement value more accurate. The electrode outputs RS485 digital signals and supports Modbus protocol for easy integration. The electrodes can be put into the water directly, without sample pretreatment and water sample transmission. Widely used in surface water, sewage water, tap water and many other scenarios of water quality testing.

#### Applications

- Surface water
- Sewage water
- Tap water
- Water quality testing
- Reservoirs
- Drinking water
- Natural water
- Domestic sewage



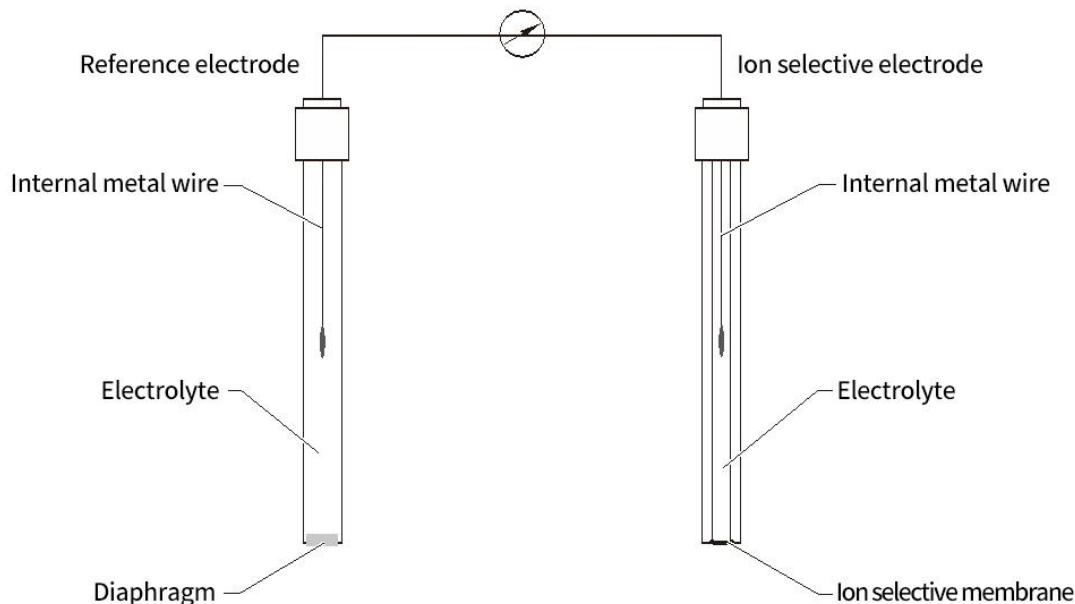
#### Features

- RS485 output, supports Modbus protocol
- Direct ammonia measurement without expensive sample pre-treatment
- More economical and environmentally friendly
- Automatic compensation, applicable to a variety of working conditions
- Each electrode can be replaced independently, simple operation, low maintenance

#### Ammonia Nitrogen Electrode

### Principle

The ammonia nitrogen electrode measures ammonium ion concentration based on an ion-selective method. The electrode is mainly composed of an ion-selective electrode, a reference electrode, an ion-selective membrane and an electrolyte, and only the ammonium ion to be measured can migrate through the ion-selective membrane and subsequently reach the electrode. After the migration of ions is completed, the charge changes and a potential is generated, the value of which is proportional to the logarithm of the ion concentration. A constant potential reference electrode is used to measure the potential and calculate the ion concentration based on the Nernst equation (Nernst). Based on the potentiometric measurement principle, the measurement results are not affected by colorimetry or turbidity.

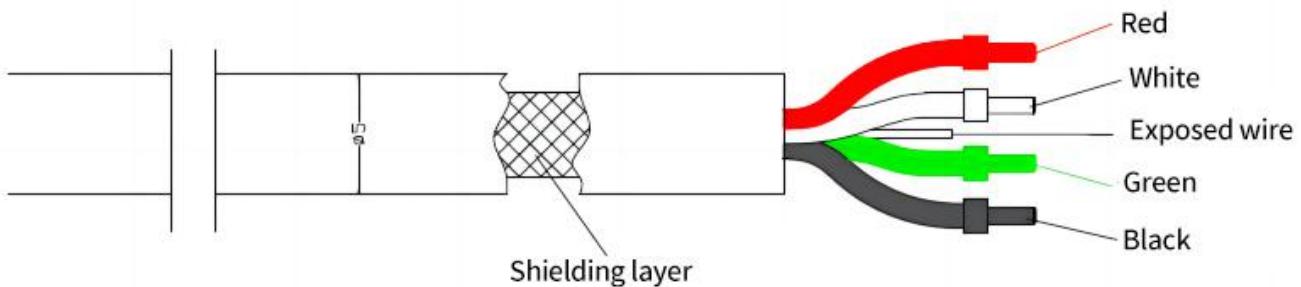


Schematic diagram of the measurement principle of ion-selective electrodes

In wastewater measurements, potassium ions and ammonium ions, which have similar chemical properties, are the most significant interfering factors and can cause high measurements, so potassium ion compensation is required, in addition to dynamic compensation for the temperature and pH of the water samples.

<b>Parameters</b>	
Measuring range	Ammonia: (0~100)mg/L, (0~1000)mg/L pH: (4~10) pH
Accuracy	Ammonia: $\pm 10\%$ of the measured value or $\pm 0.5\text{mg/L}$ , whichever is greater pH: $\pm 0.1\text{pH}$
Resolution	Ammonia:0.01mg/L pH:0.01pH
Repeatable	$\leq 3\%$
Temperature supplement	NTC,(0~50)°C
pH supplement	4~10) pH
K <sup>+</sup> supplement(optional)	(0~100)mg/L
Response time	$\leq 2\text{min}$
Reference system	Ag/AgCl reference salt bridge
Communication	RS485,MODBUS
Electrode connector	Aviation plug
Power supply	(9~24)VDC, $\geq 1\text{A}$
Power consumption	$\leq 0.5\text{W}$
Pressure resistance	$\leq 2\text{bar}$
Medium pH	(4~10)pH
Temperature range	(0~50)°C
Ingress protection	IP68
Cable length	Default 10m, other lengths can be customized
Installation	Immersion installation

## Wiring



Color	Meaning
Red	Power supply (VCC)
White	485-B
Green	485-A
Black	Ground wire (GND)
Exposed wire	Ground wire (Can be connected to instrument common ground)

Do not use the sensor cable to lift the sensor. It is recommended to install a cable protection sleeve to ensure that the cable is well powered and watertight.

Make sure the wire sequence and supply voltage are accurate before powering up.

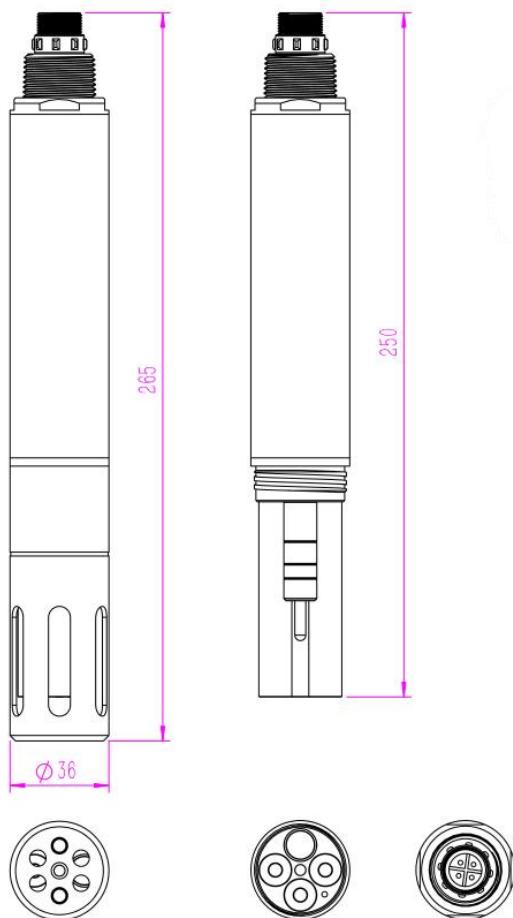
**Dimension**

Overall dimensions:  $\Phi 36\text{mm} * 265\text{mm}$  (with protective cover)

Process connection: NPT3/4 thread.

Shell material: POM+316L

Weight: about 310g



## Installation

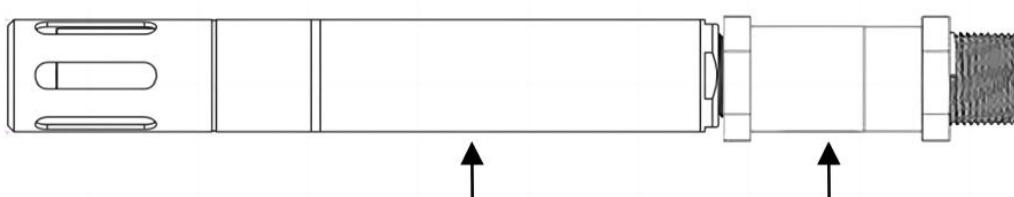
### ■ Installations

#### ■ Installation condition

- a. The sensor should be installed vertically with the electrode facing downward, not horizontally or even with the electrode facing upward;
- b. Considering the effect of water level, the sensor needs to be installed below 30cm of the lowest water level line to prevent the electrode from being exposed to the air at the dry water level;
- c. The sensor is recommended to be installed in the water without air bubbles, as far as possible away from the aeration port.

#### ■ Installation method

Tail 6 points threaded fixed safety



**Ordering code**

SUP-ADI3050 -WV-F-A-B-10-RJ						Description
SUP-ADI3050	-	-	-	-	-	
Measurement Range	WV					0-100mg/L
	WX					0-1000mg/L
Salt Bridge Type		F				Core Diaphragm
Output			A			RS485
Power Supply			B			12VDC
				10		10m
				20		20m
Cable Length				30		30m
				XX		Others
Housing Material and Thread Type				RJ		Plastic POM/316LSS, NPT3/4 Thread