WATER QUALITY / DATA SHEET

SS308-01-N01

Industrial Ion Transmitter

Continuous ion concentration and temperature monitoring with RS485 Modbus-RTU output.



Overview

- Select from eight ion electrode types for aqueous monitoring.
- Automatic temperature compensation supports stable measurement.
- Designed for industrial wastewater, surface water, drinking water and process control.

Ion Options	Resolution	Power Supply	Output
8 types	0.01 / 0.1 mg/L	DC 10–30 V	RS485 Modbus

Key Advantages

- Automatic temperature compensation.
- Configurable communication address and baud rate.
- Two-point electrode calibration.
- Upper and lower 3/4-inch threads for installation.
- Optional OLED display.

Application Scenarios

- Industrial wastewater monitoring.
- Surface water analysis.
- Drinking water monitoring.
- Industrial process control.

SYSTEM DATA

Technical Specifications

Item	Specification
Model	SS308-01-N01
Power supply / consumption	DC 10–30 V / 0.6 W
Interface / protocol	RS485 / Modbus-RTU
Range / resolution	0–100.00 mg/L / 0.01 mg/L: all ion options except chloride 0–1000.0 mg/L / 0.1 mg/L: sodium, magnesium and calcium only 0–3500.0 mg/L / 0.1 mg/L: chloride only
Ion measurement error	5% FS
Repeatability error	±1 mg/L
Response time	<60 s
Transmitter environment	−20 to +80 °C; 0–95% RH, non-condensing
Electrode operating temperature	0–50 °C
Electrode pressure resistance	0.2 MPa
Electrode cable	5 m standard; 10 m, 15 m or 20 m customizable
Electrode service life	3–6 months

Item	Specification
Housing dimensions	117 × 87 × 43 mm maximum
Electrode dimensions / thread	212 mm overall length; Ø30 mm body; NPT 3/4 at both ends
Display	Without OLED or with optional OLED

PRODUCT SELECTION

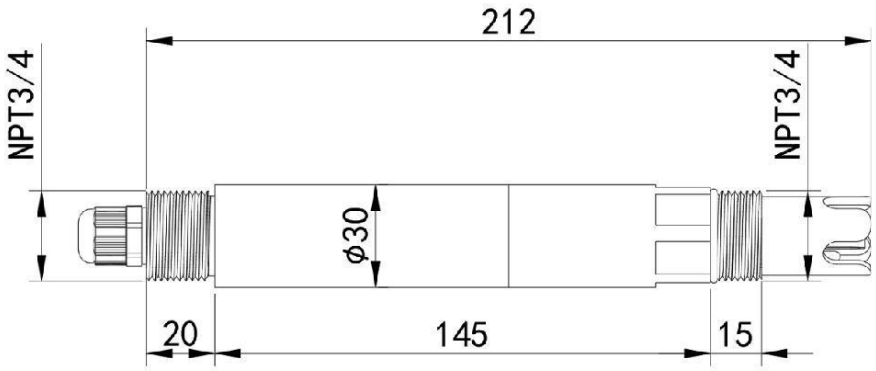
Ion Options and Operating Conditions

Ion / working pH	Main interfering ions
Ammonium / pH 4–10	K+
Nitrite / pH 2.5–11	Acetate, F−, Cl−, NO3−, sulfate and other monovalent anions
Nitrate / pH 2.5–11	ClO4−, I−, CN−, BF4−, Cl−, NO2−, organic acid ions and other monovalent anions
Magnesium / pH 3–10	Zn2+, Fe2+, Cu2+, Ni2+
Sodium / pH 5–12	Ag+, Li+, H+
Potassium / pH 2–12	Cs+, NH4+
Calcium / pH 3–10	Pb2+, Hg2+, Cu2+, Ni2+
Chloride / pH 2–12	S2−, I−, CN−, Br−

Specify SS308-01-N01, ion type, applicable measuring range, OLED option and electrode cable length when ordering. Each electrode measures its selected ion; the ion options are separate configurations.

MECHANICAL DATA

Dimensions and Installation



Electrode dimensions in millimetres. Housing: 117 × 87 × 43 mm maximum; wall mounting spacing: 105 mm. Use Ø5 mm mounting holes with the supplied expansion plugs and screws.
For immersion installation, route the electrode cable through a waterproof support and seal the upper 3/4-inch threaded joint with thread sealing tape. For pipeline installation, connect using the electrode 3/4-inch thread. Remove the transparent protective cap before measurement.

ELECTRICAL CONNECTION

Wiring Instructions

Wire / terminal	Connection
Brown	Power positive, DC 10–30 V
Black supply wire	Power negative
Yellow or green	RS485-A
Blue	RS485-B
Electrode black wire	PH−
Electrode transparent wire	PH+
Temperature wires	PT+ and PT−; either order

Open the housing using the four corner screws. Feed the electrode cable through the PG7 cable gland, connect the electrode and temperature wires to their marked terminals, and tighten the terminals. Keep connectors dry until fully locked.

COMMUNICATION DATA

Modbus RTU Configuration

Default address: 1; configurable from 1 to 254. Default baud rate: 4800 bit/s. Supported rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 bit/s. Serial format: 8 data bits, no parity, 1 stop bit; CRC-16 checking. Register data use the high byte first.

Register / function	Data and scaling
0x0000 / 0x03, 0x04	Ion concentration, unsigned 16-bit. Divide by 100 for the 100 mg/L range; divide by 10 for 1000 and 3500 mg/L ranges.
0x0001 / 0x03, 0x04	Temperature, signed 16-bit; divide by 10 for °C.
0x0050 / 0x03, 0x04, 0x06	Temperature offset, signed 16-bit; divide by 10 for °C.
0x0051–0x0052 / 0x03, 0x04, 0x10	Ion concentration offset; floating-point value in mg/L.
0x07D0 / 0x03, 0x04, 0x06, 0x10	Device address, unsigned 16-bit; 1–254.
0x07D1 / 0x03, 0x04, 0x06, 0x10	Baud code: 0=2400; 1=4800; 2=9600; 3=19200; 4=38400; 5=57600; 6=115200; 7=1200.

CALIBRATION & MAINTENANCE

Electrode Calibration and Care

Use two known ion standard solutions. Recommended calibration points: 10 and 100 mg/L for the 100 mg/L range; 100 and 1000 mg/L for the 1000 and 3500 mg/L ranges. Allow a stable reading at each point.
Using function 0x10, write two registers starting at 0x1100. Set 0x1100 to 0x0003 for the first point or 0x0004 for the second point. Set 0x1101 to the standard concentration multiplied by 100 for the 100 mg/L range, or by 10 for the 1000 and 3500 mg/L ranges.

Calibrate before each use. For continuous deployment, calibrate approximately every 2–3 weeks and adjust frequency to fouling and chemical deposits. Inspect the electrode tip for bubbles and gently shake downward to remove them. Rinse the electrode with clean water after use and store an unused electrode in its ion-specific diluted standard solution.

After long storage, activate the electrode in a 10 mg/L standard for at least 12 hours, then in a 1000 mg/L standard for 1–2 hours. Rinse thoroughly and soak in stirred deionized water for 5 minutes, changing the water repeatedly. After short storage, soak in deionized water before calibration.

Avoid corrosive media, strong acids or alkalis, strong oxidizing or reducing media, hydrofluoric acid, organic solvents and chemicals that attack glass or silver/silver chloride. Seawater is not recommended. Do not touch the membrane with sharp objects; replace aged electrodes after 3–6 months.

Do not use this device as a safety device or emergency stop device, or in applications where equipment failure could cause personal injury. Read the operating instructions before installation, use or servicing.

Package contents: one transmitter, one ion electrode, two expansion plugs, two self-tapping screws, nylon protective mesh, certificate and warranty card.

CONTACT / SUPPORT

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