ION LORA TRANSMITTER / DATA SHEET

SS308-01-LORA
Industrial Ion LoRa Transmitter

A compact LoRa ion transmitter for continuous water-quality monitoring, automatic temperature compensation and long-range low-power wireless data transfer through a LoRa gateway.



Overview

- SS308-01-LORA supports selectable ammonium, nitrite, nitrate, magnesium, sodium, potassium, calcium and chloride ion electrodes.
- Measured ion concentration and temperature are monitored continuously and transmitted through LoRa to a compatible gateway.
- The unit is suited to industrial wastewater, surface water, drinking water and process monitoring.

Ion Range	Interface	Supply	Upload
0–100 mg/L	LoRa	DC 10–30 V	300 s default

Key Advantages

- Eight ion types can be selected according to the application.
- Wide DC 10–30 V supply and automatic temperature compensation.
- LoRa spread-spectrum communication with long range, strong interference resistance and low power consumption.
- Gateway integration through 4G or Ethernet for platform, local or customer-server access.

Application Scenarios

- Industrial wastewater and process control.
- Surface water and drinking-water monitoring.
- Remote monitoring through web, local software or mobile APP.
- Agriculture, aquaculture and environmental water-quality projects.

MEASUREMENT & CONNECTIVITY

Ion Measurement and LoRa Data Path

END-TO-END DATA FLOW

The selected ion electrode and temperature element connect to the transmitter. The transmitter measures ion concentration and temperature, applies automatic temperature compensation and sends the data through LoRa to a compatible gateway. The gateway can forward data through 4G or Ethernet.

Function	Default / available setting
Ion types	Ammonium, nitrite, nitrate, magnesium, sodium, potassium, calcium or chloride
Wireless link	LoRa spread-spectrum; default sleep/upload interval 300 s
LoRa gateway	RS-LG series gateways; gateway backhaul via 4G or Ethernet
Communication channels	Transmit and receive channels 1–64; paired channel settings required
Spread factor	SF7–SF9; default SF9
Modbus baud rate	4800 default; 2400 / 9600 selectable
Device address	1–254; must be within the configured measurement-point count
Configuration	Bluetooth configuration APP; default password 12345678

MEASUREMENT PRINCIPLE

Ion-Selective Measurement

ELECTROCHEMICAL MEASUREMENT

The selected ion-selective electrode responds to the target ion activity in water. The transmitter converts the electrode signal to concentration, applies automatic temperature compensation and publishes the result together with temperature and device status.

SYSTEM DATA

Technical Specifications

Item	Specification
Model	SS308-01-LORA
Power Supply	DC 10–30 V
Power Consumption	0.8 W typical
Ion Concentration Range	0–100.00 mg/L; 0.01 mg/L resolution (not for chloride)
Extended Range	0–1000.0 mg/L; 0.1 mg/L resolution (sodium, magnesium or calcium)
Chloride Range	0–3500.0 mg/L; 0.1 mg/L resolution
Measurement Error	5% FS
Repeatability	±1 mg/L
Response Time	<60 s
Transmitter Temperature / Humidity	−20–80 °C; 0–95% RH, non-condensing
Electrode Temperature / Pressure	0–50 °C; 0.2 MPa
Electrode Cable / Life	5 m default; 10/15/20 m customizable; approximately 3–6 months
Wireless / Upload	LoRa SF7–SF9; default 300 s; use 60 s multiples
Line-of-sight range	Approx. 2000 m+ at SF7, 2300 m+ at SF8 and 3000 m+ at SF9 under specified test conditions
Enclosure	Wall-mount enclosure; maximum 117 × 87 × 43 mm

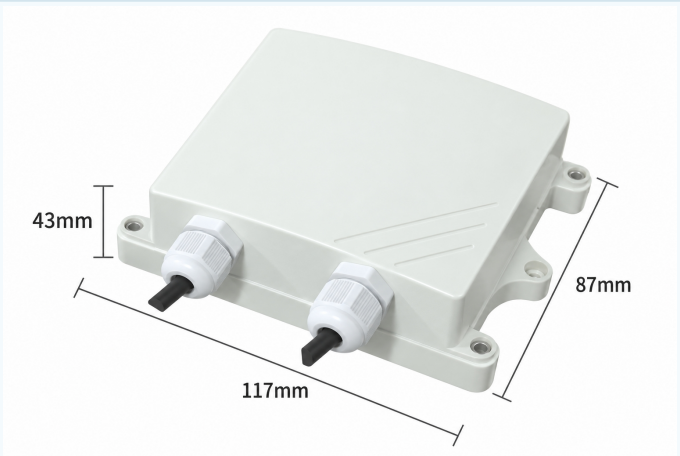
ION SELECTION

Ion Types and Operating Conditions

Ion option	Typical interference / operating pH
Ammonium NH4+	K+ interference; pH 4–10
Nitrite NO2−	Acetate, F−, Cl−, NO3−, SO4− and other anions; pH 2.5–11
Nitrate NO3−	ClO4−, I−, CN−, BF4−, Cl−, NO2− and organic acids; pH 2.5–11
Magnesium Mg2+	Zn2+, Fe2+, Cu2+ and Ni2+; pH 3–10
Sodium Na+	Ag+, Li+ and H+; pH 5–12
Potassium K+	Cs+ and NH4+; pH 2–12
Calcium Ca2+	Pb2+, Hg2+, Cu2+ and Ni2+; pH 3–10
Chloride Cl−	S2−, I−, CN− and Br−; pH 2–12

MECHANICAL DATA

Transmitter Enclosure and Electrode Installation

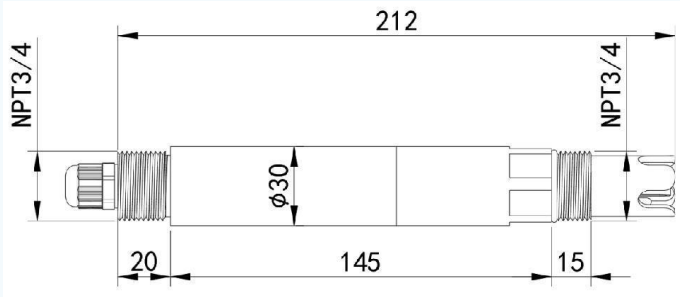


Wall-mount enclosure: maximum 117 × 87 × 43 mm

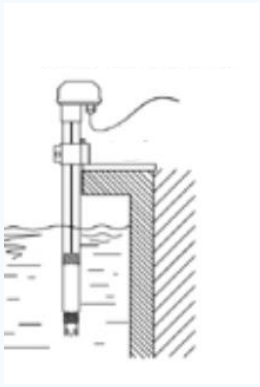
Mechanical notes

- Wall-mount with the supplied expansion plugs and screws where suitable.
- Use the 3/4 in electrode thread for submerged or pipeline installation; keep the connector dry.

Representative electrode dimensions are shown below in millimetres. The final selected ion electrode determines the applicable drawing.



Typical 3/4 in ion electrode: 212 mm; Ø30



Submerged installation example

INSTALLATION & OPERATION

Installation, Wiring and LoRa Operation

Connection / step	Function / guidance
Power + / –	Connect the supplied adapter or a stable DC 10–30 V supply
Ion electrode	Connect the black electrode wire to PH– and the transparent wire to PH+
Temperature element	Connect the temperature wires to PT+ and PT– in either order
Installation	Use the 3/4 in thread for submerged or pipeline installation; keep the cable and top of the electrode dry
LoRa gateway	Pair with a compatible gateway; gateway backhaul can use 4G or Ethernet

- Remove the cover, eliminate bubbles and rinse the electrode with deionized water before and after use.
- Activate a new electrode in standard solution; calibrate before use and every 2–3 weeks in long-term field deployment.
- Configure address, channels, spread factor and sleep interval; pair the gateway, keep the connector dry and protect the membrane.

INTEGRATION / SERVICE

Compatible SpeSense gateways provide LoRa-to-4G or Ethernet backhaul for platform, local-client or customer-server monitoring. The transmitter includes a 24-month warranty and lifetime service support; the consumable ion electrode typically lasts 3–6 months and is not covered by the transmitter warranty.

PRODUCT SELECTION

Configuration Options

Option	Description
SS308-01-LORA	Industrial ion transmitter with LoRa wireless communication
Ion	LNH ammonium; LNO2 nitrite; LNO3 nitrate; LMG magnesium; LNA sodium; LK potassium; LCA calcium; LCL chloride
LORAH	LoRa wireless communication to a compatible gateway
2	Wall-mount enclosure
Range	100 mg/L; 1000 mg/L for sodium/magnesium/calcium; 3500 mg/L for chloride
Display	Blank option means no OLED display

SELECTION NOTE

Select the ion type and compatible concentration range together. The standard package includes the transmitter, selected ion electrode, 12 V adapter, mounting hardware, certificate and warranty materials.

CONTACT / SUPPORT

SpeSense Technologies Inc.

Add: No. 9 Yuhe Road, Guitang Subdistrict, Yuhua District, Changsha City
Tel: +86-15386478166
Email: info@spesense.com
Web: www.spesense.com

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