

WATER QUALITY MONITORING / DATA SHEET

SS301-04

Four-Electrode EC Transmitter

An integrated four-electrode conductivity transmitter for continuous water-quality monitoring, combining dynamic AC drive, strong anti-polarization performance, automatic temperature compensation and RS485 Modbus-RTU communication.

Overview

- Measures conductivity, temperature and calculated salinity in high-conductivity water.
- Four-electrode construction expands the measurement range and improves anti-polarization performance.
- Wide DC 7-30 V supply with configurable RS485 address and baud rate.
- IP68 integrated construction for submerged, pipe and continuous process monitoring.



Measured EC + Temperature	EC Range 1-200000 μ S/cm	Salinity 0-70 PSU	Protection IP68
Key Functions • Dynamic AC drive with four-electrode sensing. • Improved anti-polarization performance. • Automatic temperature compensation to a 25 °C default reference. • 0.6 MPa pressure resistance.		Applications • Surface-water and municipal-water monitoring. • Aquaculture and seawater environments. • Wastewater treatment and environmental protection. • Pharmaceutical, food and process-water control.	

SYSTEM DATA

Technical Specifications

Item	Specification
Supply Voltage	DC 7-30 V
Power Consumption	≤ 0.3 W
Communication	RS485; Modbus-RTU; default 4800 bit/s; 1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 configurable
Conductivity Range / Resolution	1-200000 μ S/cm / 1 μ S/cm
Conductivity Accuracy	$\pm 1\%$ FS
Salinity Range / Resolution	0-70 PSU / 0.1 PSU
Temperature Range / Resolution	-5 to +80 °C / 0.1 °C
Temperature Accuracy	± 0.5 °C
Temperature Compensation	-5 to +80 °C; default reference 25 °C; coefficient 0.02 default
Protection / Pressure	IP68 / 0.6 MPa
Cable Length	5 m standard; other lengths customizable

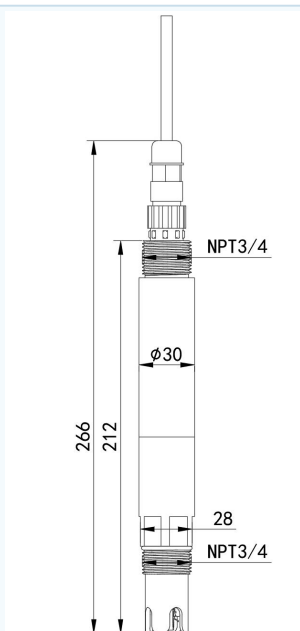
MEASUREMENT

Measurement and Conversion

Parameter	Range	Method / Resolution	Accuracy
Conductivity	1-200000 μ S/cm	Four-electrode dynamic AC measurement; 1 μ S/cm resolution	$\pm 1\%$ FS
Temperature	-5 to +80 °C	0.1 °C resolution	± 0.5 °C
Salinity	0-70 PSU	Calculated value; 0.1 PSU resolution	—

HARDWARE

Integrated Electrode and Dimensions



Probe dimensions (mm)

Mechanical Details

- Overall length: 266 mm; sensing body length: 212 mm.
- Probe diameter: Ø30 mm; side opening: 28 mm.
- NPT 3/4 threaded connections at the top and lower process interface.
- Integrated IP68 construction with 0.6 MPa pressure resistance.
- 5 m cable supplied as standard; other lengths can be specified.

INSTALLATION

Installation Guidance

Installation	Guidance
Submerged	Route the lead through a waterproof tube and seal the top NPT 3/4 connection; keep the sensing end immersed.
In-line / Pipe	Connect the NPT 3/4 thread to a compatible pipe fitting using a suitable seal and maintain a stable flow.
Clearance	Keep the measurement end at least 2 cm below the water surface and at least 2 cm from surrounding objects; 10 cm or deeper is recommended.
Cable Protection	Keep cable connectors dry until the connection is fully locked; do not place an unlocked plug in water.

INTERFACES

RS485 Modbus-RTU and Wiring

Connection	Wire / Default	Details
Power positive	Brown	7-30 V DC
Power negative	Black	0 V / negative
RS485-A	Yellow	RS485-A
RS485-B	Blue	RS485-B
Serial format	8 data bits, no parity, 1 stop bit	CRC error check; 4800 bit/s default
Device address	0x01 default	1-254 configurable
Register	Value	Description
0x0000-0x0003	Measurement values	Conductivity, temperature and salinity registers
0x0050-0x0057	Correction values	Temperature, conductivity and salinity offsets
0x0053-0x005C	Coefficients	Temperature compensation, EC coefficient and slope; defaults 0.02 / 1 / 1
0x0120-0x0122	Two-point calibration	Write calibration point 1 or 2 and the standard-solution value
0x07D0-0x07D1	Address / baud	Device address and baud-rate selection

CONFIGURATION

Calibration and Configuration

Option	Selection / Guidance
Calibration	Two-point calibration: 1413 μ S/cm for point 1 and 111310 μ S/cm for point 2.
Output correction	Output value = actual value $\times$ coefficient + offset; EC coefficient and offset are configurable.
Product package	Integrated four-electrode EC transmitter, 5 m cable, certificate and warranty card.

SERVICE

Maintenance and Safety

Item	Guidance
Before measurement	Rinse the electrode, remove bubbles from the sensing area and wait for a stable value.
Cleaning	Clean organic deposits with warm detergent water or alcohol; use 10% citric acid for mineral deposits.
Calibration interval	Calibrate before use; for long-term service, calibrate approximately every three months.
Safety	Not a safety or emergency-stop device; do not open or repair faulty units. Contact support.

CONTACT / SUPPORT

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