

WATER QUALITY MONITORING / DATA SHEET

SS301-05

Integrated EC Transmitter

An integrated RS485 conductivity transmitter for continuous water-quality monitoring, with automatic temperature compensation, salinity and TDS conversion, and a compact IP68 design.

Overview

- Measures conductivity and temperature with K=1 or K=10 electrode constants.
- Calculates salinity and TDS for continuous water-quality monitoring.
- Wide DC 7-30 V supply with standard Modbus-RTU over RS485.
- Integrated IP68 construction for submerged and pipe installations.



Measured EC + Temperature	EC Range 1-20000 μ S/cm	Supply 7-30 V DC	Protection IP68
Key Functions • Automatic compensation to a configurable reference temperature. • K=1 and K=10 electrode constants for two conductivity ranges. • Configurable Modbus address and baud rate. • Compact integrated construction for convenient field use.		Applications • Surface-water and municipal-water monitoring. • Aquaculture and agricultural water management. • Wastewater treatment and environmental protection. • Food, pharmaceutical and process-water control.	

SYSTEM DATA

Technical Specifications

Item	Specification
Supply Voltage	DC 7-30 V
Power Consumption	0.4 W
Communication	RS485; Modbus-RTU; default 4800 bit/s; 1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 configurable
Conductivity Range	K=1: 1-2000 μ S/cm; K=10: 10-20000 μ S/cm
Conductivity Resolution	K=1: 0.1 μ S/cm; K=10: 1 μ S/cm
Conductivity Accuracy	$\pm$ 1% FS
Temperature Range / Resolution	0-80 $^{\circ}$ C / 0.1 $^{\circ}$ C
Temperature Accuracy	$\pm$ 0.5 $^{\circ}$ C
Temperature Compensation	0-80 $^{\circ}$ C; default reference 25 $^{\circ}$ C; coefficient 0.02 default
Salinity Range	K=1: 0-1000 ppm; K=10: 0-11476 ppm
TDS Range	K=1: 0-1100 ppm; K=10: 0-13400 ppm
Element Temperature	-20 to +80 $^{\circ}$ C
Protection / Pressure	IP68 / 0.6 MPa
Cable Length	5 m standard; other lengths customizable

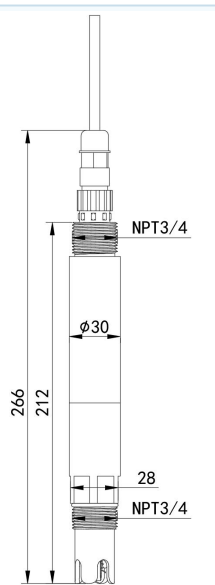
MEASUREMENT

Measurement and Conversion

Parameter	Range	Method / Resolution	Accuracy
Conductivity	1-2000 μ S/cm	K=1; 0.1 μ S/cm resolution	$\pm 1\%$ FS
Conductivity	10-20000 μ S/cm	K=10; 1 μ S/cm resolution	$\pm 1\%$ FS
Temperature	0-80 °C	0.1 °C resolution	± 0.5 °C
Salinity	0-1000 / 11476 ppm	K=1 / K=10 calculated value	—
TDS	0-1100 / 13400 ppm	K=1 / K=10 calculated value	—

HARDWARE

Integrated Electrode and Dimensions

 Probe dimensions (mm)	Mechanical Details • Overall length: 266 mm; sensing body length: 212 mm. • Probe diameter: $\varnothing 30$ 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.
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INSTALLATION

Installation Guidance

Installation	Guidance
Submerged	Route the lead through a waterproof tube and seal the NPT 3/4 connection; keep the sensing end fully immersed.
In-line / Pipe	Connect the NPT 3/4 thread to a compatible pipe fitting using a suitable seal and maintain a stable flow.
Probe Position	Remove trapped air bubbles before measurement and keep the sensing surfaces clear of sediment or deposits.
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	Conductivity	16-bit unsigned; scaled $\times 10$ for K=1 and actual value for K=10
0x0001	Temperature	16-bit signed; actual value $\times 10$
0x0002-0x0003	Salinity / TDS	16-bit unsigned; ppm
0x0050-0x0055	Offsets / coefficients	Temperature and EC correction, compensation coefficient and K value
0x0110-0x0111	Calibration	Write calibration key and standard-solution value
0x07D0-0x07D1	Address / baud	Device address and baud-rate selection

CONFIGURATION

Calibration and Configuration

Option	Selection / Guidance
Electrode constant	K=1: 1-2000 μ S/cm; K=10: 10-20000 μ S/cm
Temperature compensation	0-80 °C; 25 °C reference and 0.02 coefficient by default
Calibration	Use a matched conductivity standard solution after the probe reaches room temperature; remove bubbles before stabilizing.
Product package	Integrated EC transmitter, 5 m cable, certificate / warranty card and one matching conductivity standard solution

Service note: rinse the electrode, remove bubbles before measurement, clean deposits with suitable methods, and keep the cable plug dry until fully locked and sealed.

CONTACT / SUPPORT

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