

WATER QUALITY MONITORING / DATA SHEET

SS309-301

Wide-Range Industrial EC Controller

A panel-mount conductivity controller for continuous water-quality monitoring, with automatic temperature compensation, isolated analog output, alarm relays and Modbus-RTU communication.

Overview

- Measures conductivity and temperature from 0.0 μ S/cm to 9999.9 mS/cm.
- Displays conductivity or resistivity, temperature, time and output current on a 128 $\times$ 64 LCD.
- Stores 72 historical points over three days and supports 25 $^{\circ}$ C conversion.
- Provides high / low alarms, electrode constants and temperature compensation.



Range 0-9999.9 mS/cm	Output 4-20 mA isolated	Supply 10-30 V DC / 220 V AC	Protection IP54 controller
Key Functions • Wide-range EC / resistivity measurement with selectable electrode constant. • 25 $^{\circ}$C conversion and automatic / manual temperature compensation. • High / low alarm relays, isolated 4-20 mA output and RS485 Modbus-RTU.		Applications • Power generation and boiler-water monitoring. • Chemical, fertilizer and metallurgical process water. • Pharmaceutical, food, municipal and environmental monitoring.	

SYSTEM DATA

Technical Specifications

Item	Specification
Measurement standard	JB/T 6855-93, Industrial Conductivity Meter
Conductivity range / resolution	0.0 μ S/cm to 9999.9 mS/cm / 0.1 μ S/cm
Electronic-unit accuracy	Conductivity $\pm$ 0.5% FS; temperature $\pm$ 0.5 $^{\circ}$ C (0-60 $^{\circ}$ C)
Instrument accuracy	Conductivity $\pm$ 1.5% FS; temperature $\pm$ 1.0 $^{\circ}$ C (0-60 $^{\circ}$ C)
Temperature range / accuracy	0-99.9 $^{\circ}$ C / 0.1 $^{\circ}$ C; $\pm$ 0.5 $^{\circ}$ C
Automatic temperature compensation	0-99.9 $^{\circ}$ C; 25 $^{\circ}$ C reference
Repeatability / stability	$\pm$ 0.2% / $\pm$ 0.2%
Isolated analog output	4-20 mA default; 0-5 V or 0-10 V optional; output error $\leq$ $\pm$ 1% FS
Alarm relays	High / low limit relays; AC 220 V, 3 A
Data memory	72 points covering three days (one point per hour)
Communication	RS485; Modbus-RTU protocol
Supply / power	DC 10-30 V or AC 220 V; $\leq$ 1.6 W DC / $\leq$ 15 W AC
Protection / enclosure	IP54; 96 $\times$ 96 $\times$ 110 mm; panel cutout 92 $\times$ 92 mm
Weight / environment	$\leq$ 0.6 kg; -20 to +60 $^{\circ}$ C; RH < 85%
Electrode cable	5 m standard

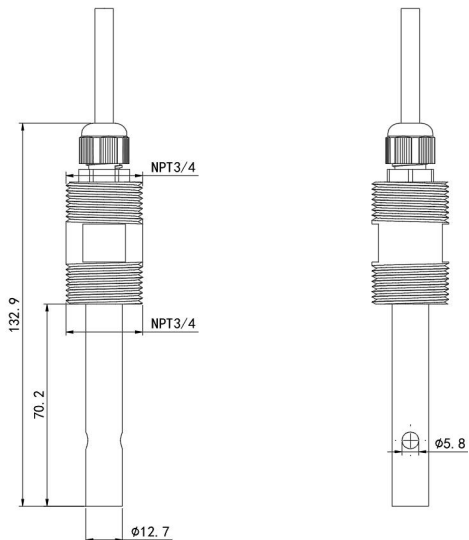
MEASUREMENT

Measurement and Control Functions

Function	Range	Method / Resolution	Specification
Conductivity	0.0 μ S/cm-9999.9 mS/cm	0.1 μ S/cm resolution	$\pm 1.5\%$ FS
Temperature	0-99.9 °C	0.1 °C resolution	± 0.5 °C
Temperature compensation	0-99.9 °C	Automatic or manual; 25 °C reference	Configurable
Alarm control	High / low limits	Relay contact for control equipment	AC 220 V, 3 A
Historical data	72 points / three days	One point per hour	Internal memory

HARDWARE

Controller and Electrode Dimensions

	Mechanical Details • Controller: 96 × 96 × 110 mm; panel cutout: 92 × 92 mm. • Stainless-steel electrode: NPT 3/4, 132.9 mm overall, Ø12.7 mm body, Ø5.8 mm mounting hole. • Plastic electrode: NPT 3/4, 145 mm overall, Ø14 mm sensing section, Ø26.5 mm threaded body. • Install on a dry panel or near the pool; keep the front clean and route the 5 m signal cable away from power wiring.
Electrode dimensions (mm)	

INTERFACES

Wiring and Modbus-RTU

Terminal	Function
DC24V - / +	Power negative / positive
AL / AH	Low-alarm / high-alarm relay contacts
4-20mA - / +	Isolated current-output negative / positive
B- / A+	RS485 communication B / A
T1 / T2	Electrode temperature leads
EC- / EC+	Conductivity measurement leads
Item	Default / Details
Protocol	Modbus-RTU; CRC error check
Serial format	8 data bits, no parity, 1 stop bit
Baud rate	4800 bit/s default; 1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 configurable
Address	0x01 default; 1-254 configurable
Registers	Conductivity, temperature, resistivity, address and baud-rate registers available for read / write functions

CONFIGURATION

Setup and Electrode Options

Setting	Guidance
Alarm limits	Set high and low conductivity or resistivity limits; relay hysteresis prevents contact chatter.
Analog scaling	Set the conductivity or resistivity value corresponding to 4 mA and 20 mA.
Electrode constant	Set 0.001-60.000; stainless-steel or plastic electrode options with K=1 or K=10.
Temperature coefficient	Set 1.00-3.00%; default 2.00% for different water qualities.
Temperature correction	Manual correction -99.9 to +99.9 °C; automatic or manual compensation mode.
History / display	Review 72 historical points; choose conductivity or resistivity display mode.

SERVICE

Care and Maintenance

Before measurement, agitate the electrode to release bubbles and wait for a stable value. Store a long-unused electrode dry and soak it in distilled water before reuse; clean deposits with suitable detergent, alcohol or 10% citric acid without wiping plated sensing surfaces. Calibrate before use and at least every three months for long-term service. Do not use this product as a safety or emergency-stop device.

Product note: select the supply and electrode option before installation, match the electrode constant to the target range, seal cable entries, and keep the sensing surfaces clean.

CONTACT / SUPPORT

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