

Model 223 Conductivity Transmitter

Features

- Measures Conductivity, Resistivity, % Concentration, TDS, ppm
- 96 X 96 mm Panel Mount Enclosure Takes Up Less Panel Space
- Temperature Slope Adjustment Provides Greater Accuracy in Chemical Concentration Control
- “Live Check” Continuously Monitors Sensor Performance
- Up To Four Alarm Contacts Including Temperature
- Dedicated Fault Alarm
- NAMUR Fault Current Alarm
- PID Controller
- 2nd Current Output for Temperature



Applications

- Ultrapure Water
- Reverse Osmosis
- Demineralizers
- Boiler Water and Cooling Water
- Metal Cleaning and Plating

Description

The Model 223 Conductivity Transmitter with the appropriate sensor measures conductivity up to 2000 mS/cm, resistivity in megohms and concentration in percent, ppm, mg/l or TDS. The basic transmitter is available with either a 115 VAC or 24 Volt AC/DC power supply, linear isolated current output and one alarm. Features include the addition of a second output for temperature and up to four alarms which may be configured for on-off control functions, alarm limits, timer for cleaning or PID control functions. The PS version adds the diagnostic function Live Check as well as a non-linear programmable current output. Live Check signals an alarm when the sensor signal does not change over a defined period.

| Base Transmitter (PR) | Plus Package (PS) |
|---|--|
| Measurement, display and calibration of the process variable (PV) and temperature. Isolated current output (Code 0) Temperature output (Code 1) One alarm (Code 05) <ul style="list-style-type: none"> • On – Off Dedicated fault alarm (Standard) NAMUR fault current (Standard) <ul style="list-style-type: none"> • 2.4 or 22.0 mA | Adaptive Calibration for Inductive Conductivity Cells Polarization Detection Live Check sensor signal monitoring and alarm. Programmable non-linear current output. |
| Code 10 | Additional Features |
| Two Alarm Contacts for PV and Temperature <ul style="list-style-type: none"> • On – Off • Timer for cleaning • P(ID) Controller | USP 24 Alarm for Pharmaceutical Grade Water (WFI Systems) Automatic Cleaning initiated by an internal alarm or limit violation |
| Code 16 | Additional Features |
| Four Alarm Contacts for PV and Temperature <ul style="list-style-type: none"> • On – Off • Timer for cleaning • P(ID) Controller | Cleaning initiated externally or automatically by an internal alarm or limit violation |

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Specifications

| Conductivity Measurement | |
|--|---|
| Measuring Range | Conductivity; 0 to 2000 mS/cm Resistivity; 0 to 20 Megohms cm Concentration; 0 to 9999 (% , ppm, mg/l, TDS) |
| Resolution | 0.5% of Measured Value |
| Repeatability | 0.2% of Measured Value |
| Deviation, Output / Input | 0.75% of Current Output Range |
| Compatible Cell Constants | 0.0025 to 99.99 cm ⁻¹ |
| Measuring Frequency | Conductivity; 299.75 to 1077.6 Hz Resistivity; 32.5 to 425 Hz |
| Maximum Cable Length Sensor to Transmitter | Conductivity; 100 meters (328 ft.) Resistivity; 20 meters (65 ft.) |

| Inductive Conductivity Measurement | |
|--|----------------------------------|
| Measuring Range | 0 to 2000 mS/cm (uncompensated) |
| Cell Constant | 0.0025 to 99.99 cm ⁻¹ |
| Measuring Frequency | 2 kHz |
| Maximum Cable Length Sensor to Transmitter | 55 meters (180 ft.) |

| Temperature Compensation | |
|--------------------------|---|
| Temperature Sensor | Pt 100 or Pt1000 |
| Reference Temperature | 25°C (77°F) |
| Measuring Range | -35 to 250°C (-31 to 482°F) |
| Resolution | 0.1°C |
| Repeatability | 1.0% of Measuring Range |
| Compensation Curves | Linear, NaCl, Ultrapure Water, Programmable |

| Digital Inputs 1 and 2 | |
|------------------------|---------------|
| Voltage | 10 to 50 V |
| Power Consumption | Maximum 10 mA |

| Current Output | |
|-------------------------|-------------------------------------|
| Range | Selectable 0 to 20 mA or 4 to 20 mA |
| NAMUR Fault Current | 2.4 or 22.0 mA |
| Maximum Load | 500 Ohms |
| Output Scale Expansion | 10% to 100% |
| Output Isolation | Max. 350V _{rms} / 500Vdc |
| Over Voltage Protection | EN 61000-4-5:1995 |

| Auxiliary Voltage Output | |
|--------------------------|-----------|
| Output Voltage | 15 V |
| Output Current | Max. 10mA |

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Specifications

| Alarms | |
|--------------------------------|--|
| Programmable | Conductivity, Resistivity, Temperature, USP 24 |
| Alarm Delay | 0 to 2000 sec |
| Contacts | Dry, SPDT, NO / NC |
| Resistive Load, Current Rating | 2.0 Amps |
| Inductive Load, Current Rating | 2.0 Amps |
| Voltage Rating | 250 VAC, 30 VDC |
| Resistive Load, Power Rating | 1250 VA AC, 150 Watts DC |
| Inductive Load, Power Rating | 500 VA AC, 90 Watts DC |

| Controller | |
|--|----------------------------------|
| Pulse Length | Solenoid Valves |
| Pulse Frequency | Solenoid Operated Metering Pumps |
| Control Functions | P, PI, PD, PID |
| Proportional Band (P) | 0.01 to 20.00 |
| Integral (I) | 0.0 to 999.0 min |
| Derivative (D) | 0.0 to 999.0 min |
| Period for Pulse Length Controller | 0.5 to 999.9 sec |
| Frequency for Pulse Frequency Controller | 60 to 180 min ⁻¹ |

| Physical Specifications | |
|--------------------------------|--|
| Dimensions (H X W X L) | 96 X 96 X 145 mm (3.8 X 3.8 X 5.7 in.) |
| Mounting Depth | 165 mm (6.5 in.) |
| Weight | 0.7kg (1.54 lb.) |
| Housing | Polycarbonate |
| Front Panel | Polyester, UV resistant |

| Operating Conditions | |
|-----------------------------|------------------------------------|
| Temperature | -10 to 55°C |
| Storage and Transport | -25 to 65°C |
| Relative Humidity | 10 to 95%, non-condensing |
| Enclosure Rating | IP54 (front panel), IP30 (housing) |
| EMI / RFI | EN 61326-1:1997 |

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Ordering Information

| Model | Description |
|----------------------------------|--|
| M – 223 - CD | Conductivity / Resistivity Transmitter |
| M – 223 - CS | Conductivity / Resistivity Transmitter with Plus Package |
| M – 223 - ID | Inductive Conductivity Transmitter |
| M – 223 - IS | Inductive Conductivity Transmitter with Plus Package |
| Code | Description |
| 1 | 115 VAC, 50/60 Hz Power |
| 8 | 24 VAC or VDC Power |
| Code | Description |
| 0 | Conductivity Current Output |
| 1 | Conductivity and Temperature Output |
| Code | Description |
| 05 | One Alarm |
| 10 | Two Alarms |
| 16 | Four Alarms |
| M – 223 - CD - 1 - 1 - 10 | Order Number Example |

Outline and Mounting Dimensions

