



2-wire programmable transmitter

5331A

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- 1.5 kVAC galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



Application

- Linearized temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Conversion of linear resistance variation to a standard analog current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.

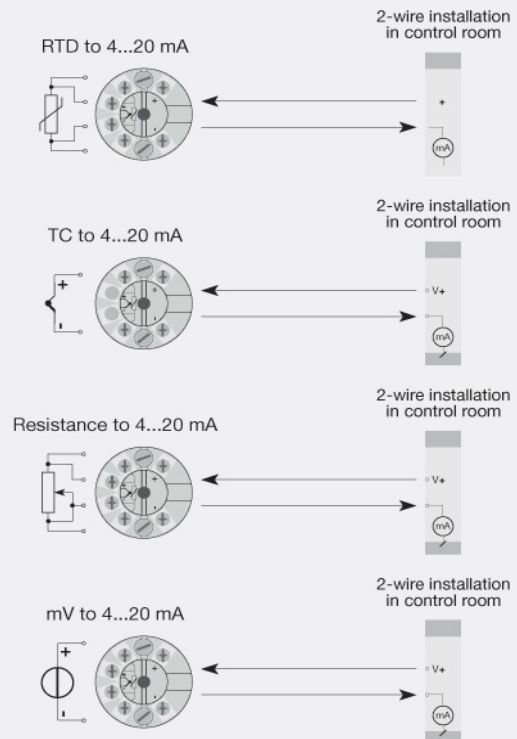
Technical characteristics

- Within a few seconds the user can program PR5331A to measure temperatures within all ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 2-, 3- and 4-wire connection.
- Continuous check of vital stored data for safety reasons.

Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

Connections



Order:

Type	Ambient temperature	Galvanic isolation
5331A	-40°C...+85°C : 3	1500 VAC : B

Environmental Conditions

Specifications range..... -40°C to +85°C
 Calibration temperature..... 20...28°C
 Relative humidity..... < 95% RH (non-cond.)
 Protection degree (encl./terminal)..... IP68 / IP00

Mechanical specifications

Dimensions..... Ø 44 x 20.2 mm
 Weight approx..... 50 g
 Wire size..... 1 x 1.5 mm² stranded wire
 Screw terminal torque..... 0.4 Nm
 Vibration..... IEC 60068-2-6 : 2007
 Vibration: 2...25 Hz..... ±1.6 mm
 Vibration: 25...100 Hz..... ±4 g

Common specifications

Supply voltage..... 7.2...35 VDC
 Internal consumption..... 25 mW...0.8 W
 Voltage drop..... 7.2 VDC
 Isolation voltage, test / working..... 1.5 kVAC / 50 VAC
 Warm-up time..... 5 min.
 Communications interface..... Loop Link
 Signal / noise ratio..... Min. 60 dB
 Response time (programmable)..... 1...60 s
 EEPROM error check..... < 3.5 s
 Accuracy..... Better than 0.05% of selected range
 Signal dynamics, input..... 20 bit
 Signal dynamics, output..... 16 bit
 Effect of supply voltage change..... < 0.005% of span / VDC
 EMC immunity influence..... < ±0.5% of span
 Extended EMC immunity: NAMUR NE 21, A criterion, burst..... < ±1% of span

Input specifications

Max. offset..... 50% of selected max. value
 RTD input..... Pt100, Ni100, lin. R
 Cable resistance per wire (max.), RTD..... 5 Ω
 Sensor current, RTD..... Nom. 0.2 mA
 Effect of sensor cable resistance (3-/4-wire), RTD..... < 0.002 Ω / Ω
 Sensor error detection, RTD..... Yes
 TC input: Thermocouple type..... B, E, J, K, L, N, R, S, T, U, W3, W5, LR
 Cold junction compensation (CJC)..... < ±1.0°C
 Sensor error detection, TC..... Yes
 Sensor error current: When detecting / else..... Nom. 33 µA / 0 µA
 Voltage input: Measurement range..... -12...800 mV
 Min. measurement range (span), voltage input..... 5 mV
 Input resistance, voltage input..... 10 MΩ

Output specifications

Current output: Signal range..... 4...20 mA
 Min. signal range..... 16 mA
 Updating time..... 440 ms
 Load resistance, current output..... ≤ (Vsupply - 7.2) / 0.023 [Ω]
 Load stability, current output..... ≤0.01% of span/100 Ω
 Sensor error indication, current output..... Programmable 3.5...23 mA
 NAMUR NE 43 Upscale/Downscale..... 23 mA / 3.5 mA
 *of span..... = of the presently selected range

Approvals

EMC..... EN 61326-1
 ATEX..... KEMA 10ATEX0002 X
 IECEx..... DEK 13.0035X
 INMETRO..... DEKRA 13.0001 X
 GOST R..... Yes
 DNV Marine..... Stand. f. Certific. No. 2.4