



2-wire programmable transmitter

5331D

- 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.

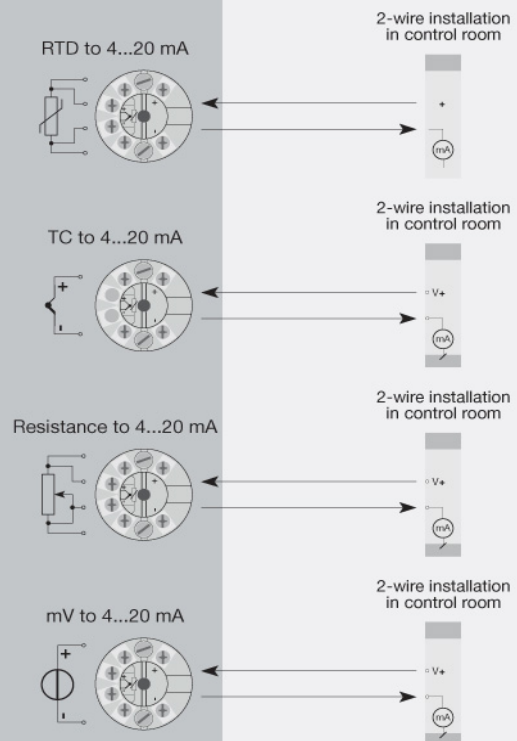
Technical characteristics

- Within a few seconds the user can program PR5331D 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 mounting.
- NB: As Ex barrier we recommend 5104B, 5114B, or 5116B.

Connections



Order:

| Type | Ambient temperature | Galvanic isolation |
|-------|---------------------|--------------------|
| 5331D | -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 mm ² 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...30 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 06ATEX0062 |
| IECEX..... | DEK 13.0035X |
| FM..... | 2D5A7 |
| CSA..... | 1125003 |
| INMETRO..... | DEKRA 13.0001 X |
| GOST R..... | Yes |
| GOST Ex..... | Yes |
| DNV Marine..... | Stand. f. Certific. No. 2.4 |