PERFORMANCE MADE SMARTER



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.

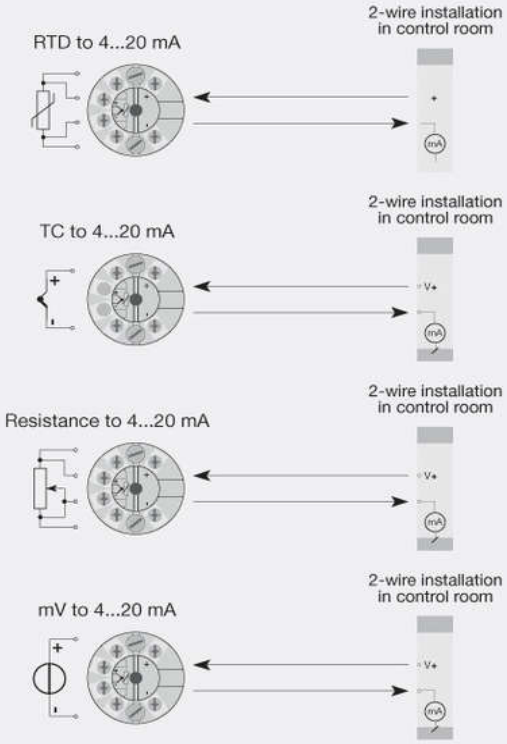
Technical characteristics

- 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.

Applications



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Order:

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

Environmental Conditions

Operating temperature..... -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
2...25 Hz..... ±1.6 mm
25...100 Hz..... ±4 g

Common specifications

Supply
Supply voltage..... 7.2...35 VDC
Internal power dissipation..... 25 mW…0.8 W

Isolation voltage
Isolation voltage, test / working..... 1.5 kVAC / 50 VAC

Response time
Response time (programmable)..... 1...60 s

Voltage drop..... 7.2 VDC
Warm-up time..... 5 min.
Programming..... Loop Link
Signal / noise ratio..... Min. 60 dB
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 NE21, A criterion, burst..... < ±1% of span

Input specifications

Common input specifications
Max. offset..... 50% of selected max. value

RTD input
RTD type..... Pt100, Ni100, lin. R
Cable resistance per wire..... 5 Ω (max.)
Sensor current..... Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire)..... < 0.002 Ω / Ω
Sensor error detection..... Yes

Linear resistance input
Linear resistance min....max..... 0 Ω...5000 Ω

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..... Yes
Sensor error current: When detecting / else..... Nom. 33 µA / 0 µA

Voltage input
Measurement range..... -12...800 mV
Min. measurement range (span)..... 5 mV
Input resistance..... 10 MΩ

Output specifications

Current output
Signal range..... 4…20 mA
Min. signal range..... 16 mA
Load (@ current output)..... ≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability..... ≤ 0.01% of span / 100 Ω
Sensor error indication..... Programmable 3.5…23 mA
NAMUR NE43 Upscale/Downscale..... 23 mA / 3.5 mA

Common output specifications
Updating time..... 440 ms

of span..... = of the presently selected range

I.S. / Ex marking

ATEX..... II 3 G Ex nA [ic] IIC T4...T6 Gc, II 3 G Ex ic IIC T4...T6 Gc, II 3 D Ex ic IIIC Dc
IECEx..... Ex nA [ic] IIC T4...T6 Gc, Ex ic IIC T4...T6 Gc, Ex ic IIIC Dc

Observed authority requirements

EMC..... 2014/30/EU
RoHS..... 2011/65/EU
EAC..... TR-CU 020/2011

Approvals

DNV-GL Marine..... Stand. f. Certific. No. 2.4
ATEX 2014/34/EU..... KEMA 10ATEX0002 X
IECEx..... DEK 13.0035X
INMETRO..... DEKRA 16.0013 X