

# 2-WIRE PROGRAMMABLE TRANSMITTER



- 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:

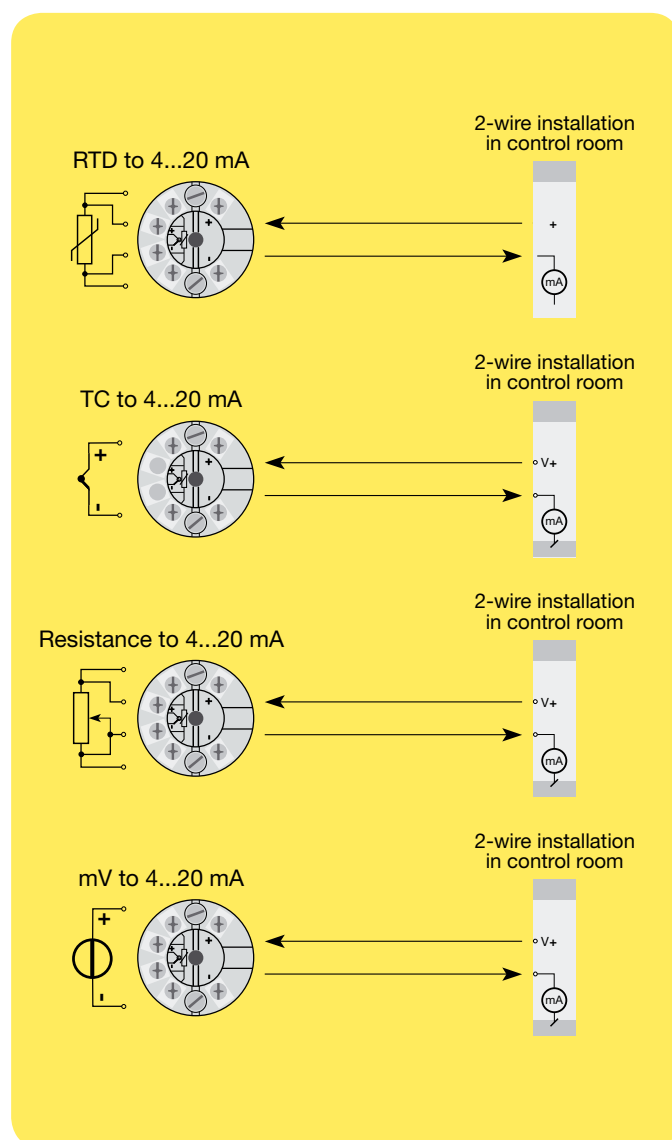
- Linearised temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.

### 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:

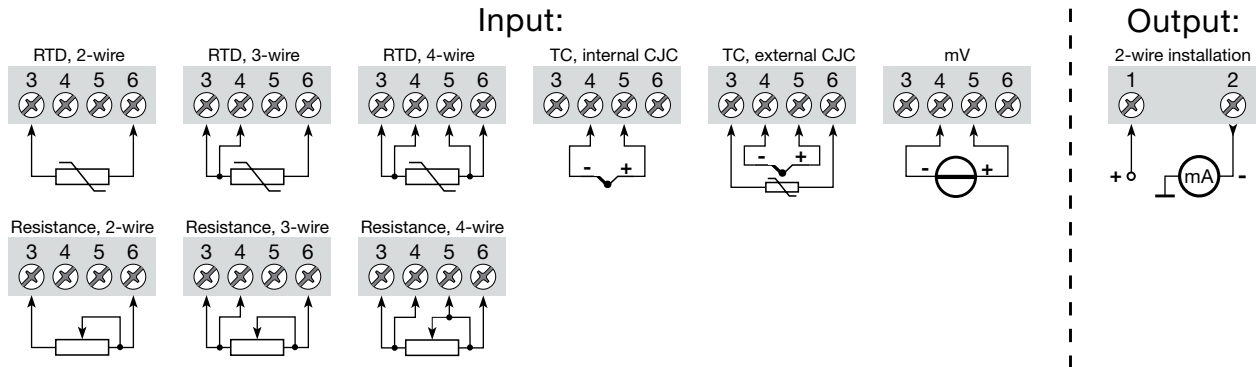
- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.



Order: 5331A

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

**Connections:**



**Electrical specifications:**

**Specifications range:**

-40°C to +85°C

**Common specifications:**

- Supply voltage, DC ..... 7.2...35 V
- Voltage drop ..... 7.2 VDC
- Isolation voltage, test / operation ..... 1.5 kVAC / 50 VAC
- Communications interface ..... Loop Link
- Signal / noise ratio ..... Min. 60 dB
- Signal dynamics, input ..... 20 bit
- Signal dynamics, output ..... 16 bit

Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.05% of span	≤ ±0.01% of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
RTD	≤ ±0.2°C	≤ ±0.01°C/°C
Lin. R	≤ ±0.1 Ω	≤ ±10 mΩ / °C
Volt	≤ ±10 μV	≤ ±1 μV / °C
TC type: E, J, K, L, N, T, U	≤ ±1°C	≤ ±0.05°C / °C
TC type: B, R, S, W3, W5, LR	≤ ±2°C	≤ ±0.2°C / °C

EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span

- Vibration ..... IEC 60068-2-6 Test FC
- Lloyd's specification no. 1 ..... 4 g / 2...100 Hz
- Humidity ..... < 95% RH (non-cond.)
- Dimensions ..... Ø 44 x 20.2 mm
- Protection degree (encl. / terminal) ... IP68 / IP00

**Electrical specifications, input:**

Max. offset ..... 50% of selec. max. value

**RTD and linear resistance input:**

RTD type	Min. value	Max. value	Min. span	Standard
Pt100	-200°C	+850°C	25°C	IEC 60751
Ni100	-60°C	+250°C	25°C	DIN 43760
Lin. R	0 Ω	5000 Ω	30 Ω	-----

Cable resistance per wire (max.) ..... 5 Ω

Sensor current ..... Nom. 0.2 mA

**TC input:**

Type	Min. temperature	Max. temperature	Min. span	Standard
B	+400°C	+1820°C	100°C	IEC584
E	-100°C	+1000°C	50°C	IEC584
J	-100°C	+1200°C	50°C	IEC584
K	-180°C	+1372°C	50°C	IEC584
L	-100°C	+900°C	50°C	DIN 43710
N	-180°C	+1300°C	50°C	IEC584
R	-50°C	+1760°C	100°C	IEC584
S	-50°C	+1760°C	100°C	IEC584
T	-200°C	+400°C	50°C	IEC584
U	-200°C	+600°C	50°C	DIN 43710
W3	0°C	+2300°C	100°C	ASTM E988-90
W5	0°C	+2300°C	100°C	ASTM E988-90
LR	-200°C	+800°C	50°C	GOST 3044-84

Cold junction compensation ..... < ±1.0°C

**Voltage input:**

- Measurement range ..... -12...800 mV
- Min. span ..... 5 mV

**Current output:**

- Signal range ..... 4...20 mA
- Min. signal range ..... 16 mA
- Updating time ..... 440 ms
- Load resistance ..... ≤ (Vsupply - 7.2) / 0.023 [Ω]

**Sensor error detection:**

Programmable ..... 3.5...23 mA

**Ex approval:**

- KEMA 10ATEX0002 X ..... II 3 GD Ex nA [nL] IIC  
T4...T6 or  
II 3 GD Ex nL IIC
- Ex T4...T6 or  
II 3 GD Ex nA [ic] IIC  
T4...T6 or  
II 3 GD Ex ic IIC  
T4...T6

ATEX Installation Drawing No. .... 5331QA02

**Marine approval:**

Det Norske Veritas, Ships & Offshore .. Stand. f. Certific. No. 2.4

**GOST R approval:**

VNIIM, Cert. No. .... www.prelectronics.com

**Observed authority requirements: Standard:**

- EMC 2004/108/EC ..... EN 61326-1
- ATEX 94/9/EC ..... EN 60079-0, -11, -15

**Of span** = Of the presently selected range