

# 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:

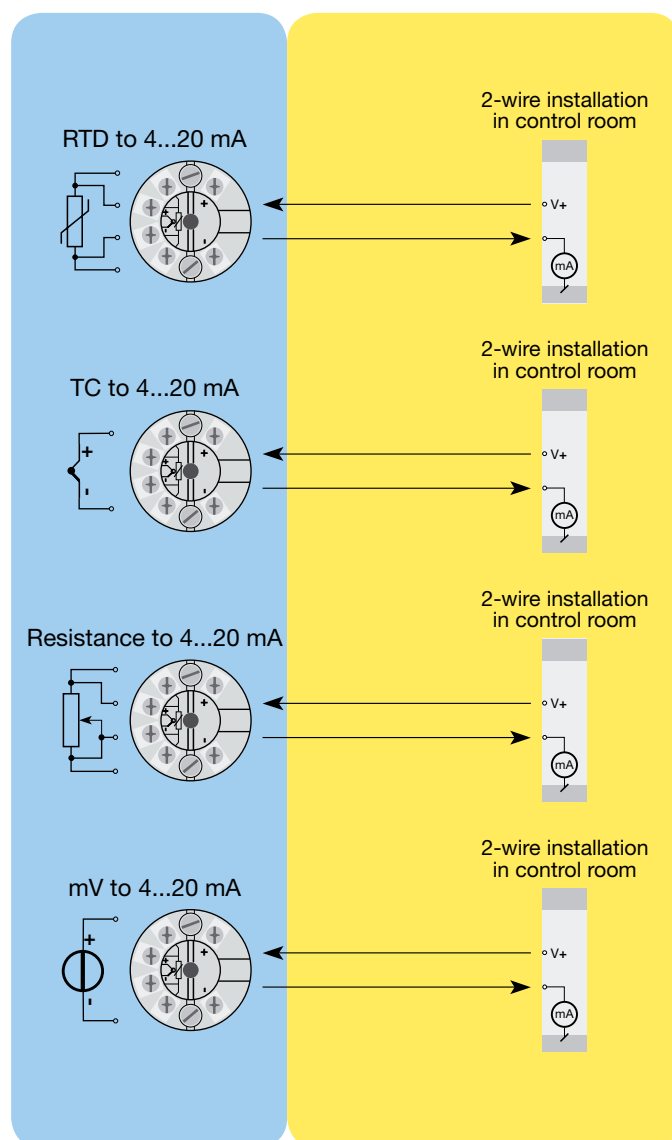
- Linearised temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.

### Technical characteristics:

- Within a few seconds the user can program 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:

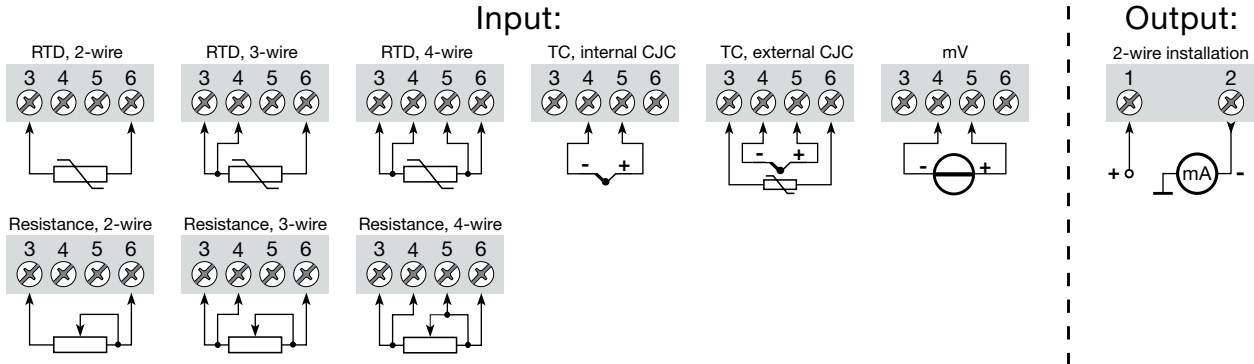
- For DIN form B sensor head mounting.
- **NB:** As Ex barrier we recommend 5104B, 5114B, or 5116B.



Order: 5331

Type	Version	Ambient-temperature	Galvanic isolation
5331	CSA, FM & ATEX : D	-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...30 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

**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

**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

**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 / I.S. approval:**

KEMA 06ATEX0062 ..... II 1 G Ex ia IIC  
 T4 or T6  
 II 1 D Ex iaD

Max. ambient temp. for T1...T4 ..... 85°C  
 Max. ambient temp. for T5 and T6 ..... 60°C  
 ATEX, applicable in zone ..... 0, 1, 2, 20, 21 or 22  
 ATEX Installation Drawing No. .... 5331QA01

FM, applicable in ..... IS, Class I, Div. 1,  
 Group A, B, C, D  
 IS, Class I, Zone 0,  
 AEx ia IIC  
 FM Installation Drawing No. .... 5300Q502

CSA, applicable in ..... IS, Class I, Div. 1,  
 Group A, B, C, D,  
 Ex ia IIC  
 IS, Class I, Zone 0,  
 AEx ia IIC  
 CSA Installation Drawing No. .... 533XQC03

**Marine approval:**

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

**GOST R approval:**

VNIIM & VNIIFTRI, Cert. no. .... www.preelectronics.com

**Observed authority requirements:**

EMC 2004/108/EC ..... EN 61326-1  
 ATEX 94/9/EC ..... EN 60079-0, -11, -26  
 EN 61241-0, -11  
 3600, 3611, 3610  
 FM ..... C22.2 No. 157,  
 CSA, CAN / CSA ..... E60079-11, UL 913

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