

# 2-WIRE PROGRAMMABLE TRANSMITTER



- RTD or Ohm input
- High measurement accuracy
- 3-wire connection
- Programmable sensor error value
- For DIN form B sensor head mounting



### Application:

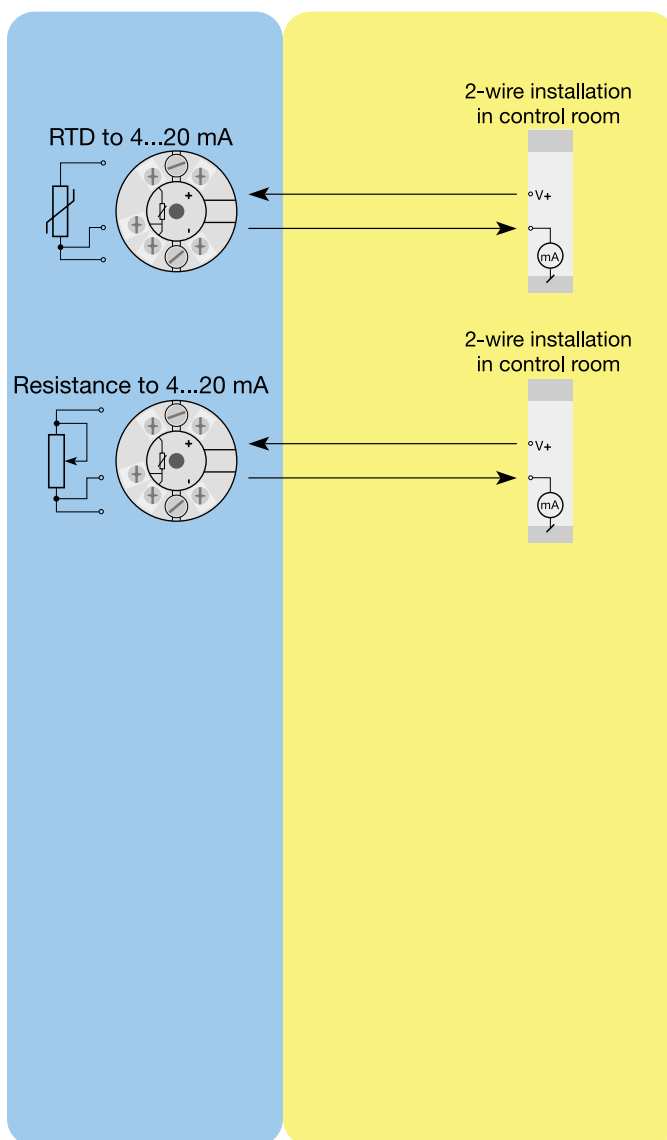
- Linearised temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.

### Technical characteristics:

- Within a few seconds the user can program PR5333B, C & D to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 2-wire connection.

### Mounting / installation:

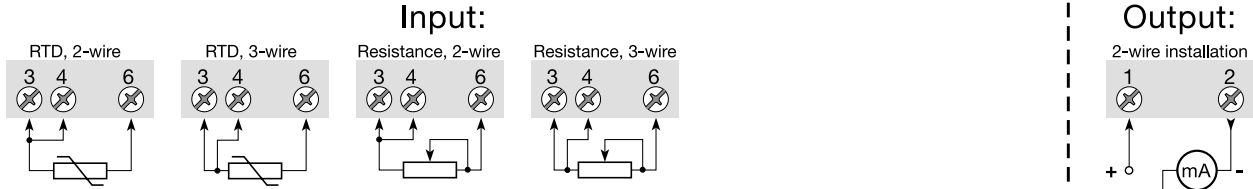
- For DIN form B sensor head or DIN rail mounting with a special fitting.
- **NB:** As Ex barrier we recommend 5104B, 5111B, or 5114B.



Order: 5333

Type	Version
5333	ATEX : B
	FM and ATEX : C
	CSA, FM and ATEX : D

**Connections:**



**Electrical specifications:**

**Specifications range:**

-40°C to +85°C

**Common specifications:**

Supply voltage, DC ..... 8.0...28 V  
 Internal consumption ..... 25 mW...0.8 W  
 Voltage drop ..... 8 VDC  
 Warm-up time ..... 5 min.  
 Communications interface ..... Loop Link 5905  
 Signal / noise ratio ..... Min. 60 dB  
 Response time (programmable) ..... 0.33...60 s  
 Signal dynamics, input ..... 19 bit  
 Signal dynamics, output ..... 16 bit  
 Calibration temperature ..... 20...28°C  
 Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.1% of span	≤ ±0.01% of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
RTD	≤ ±0.3°C	≤ ±0.01°C / °C
Lin.R	≤ ±0.2 Ω	≤ ±20 mΩ / °C

EMC immunity influence ..... ≤ ±0.5% of span

Effect of supply voltage variation ..... ≤ 0.005% of span / VDC  
 Vibration ..... IEC 68-2-6 Test FC  
 Lloyd's specification no. 1 ..... 4 g / 2...100 Hz  
 Max. wire size ..... 1 x 1.5 mm<sup>2</sup>  
 Humidity ..... < 95% RH (non-cond.)  
 Dimensions ..... Ø 44 x 20.2 mm  
 Tightness (enclosure / terminal) ..... IP68 / IP00  
 Weight ..... 50 g

**Electrical specifications, input:**

**RTD and linear resistance input:**

RTD type	Min. value	Max. value	Min. span
Pt100	-200°C	+850°C	25°C
Ni100	-60°C	+250°C	25°C
Lin.R	0 Ω	10000 Ω	30 Ω

Max. offset ..... 50% of selec. max. value  
 Cable resistance per wire (max.) ..... 10 Ω  
 Sensor current ..... > 0.2 mA, < 0.4 mA

**Effect of sensor cable resistance**

(3-wire) ..... < 0.002 Ω / Ω  
 Sensor error detection ..... Yes

**Output:**

**Current output:**

Signal range ..... 4...20 mA  
 Min. signal range ..... 16 mA  
 Updating time ..... 135 ms  
 Load resistance ..... ≤ (V<sub>supply</sub> - 8) / 0.023 [Ω]  
 Load stability ..... < ±0.01% of span/100 Ω

**Sensor error detection:**

Programmable ..... 3.5...23 mA  
 NAMUR NE43 Upscale ..... 23 mA  
 NAMUR NE43 Downscale ..... 3.5 mA

**Ex data:**

U<sub>i</sub> ..... 28 VDC  
 I<sub>j</sub> ..... 120 mADC  
 P<sub>i</sub> ..... 0.84 W  
 L<sub>i</sub> ..... 10 µH  
 C<sub>i</sub> ..... 1.0 nF

**EEx approval CENELEC:**

DEMKO 99 ..... ATEX 126964  
 ATEX ..... 0539 (Ex) II 1 G  
 EEx ia IIC T1...T6

Max. amb. temperature for T1...T4 ..... 85°C  
 Max. amb. temperature for T5 and T6 ..... 60°C  
 Applicable in zone ..... 0, 1 or 2  
**FM** ..... IS, CL. I, DIV. 1, GP. A-D  
 Entity, FM Control Drawing No. .... 5300Q502  
**CSA** ..... Class I, Zone 0/1, Gr. IIC  
 Installation Drawing No. .... 533XQC03

**Observed authority requirements: Standard:**

EMC 89/336/EEC, Emission ..... EN 50 081-1, EN 50 081-2  
 Immunity ..... EN 50 082-2, EN 50 082-1  
 Emission and immunity ..... EN 61 326  
 ATEX 94/9/EC ..... EN 50 014 and EN 50 020  
 FM Class Number ..... 3600, 3610  
 CSA Class Number ..... 2258 04, 2258 84

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