

# 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:**

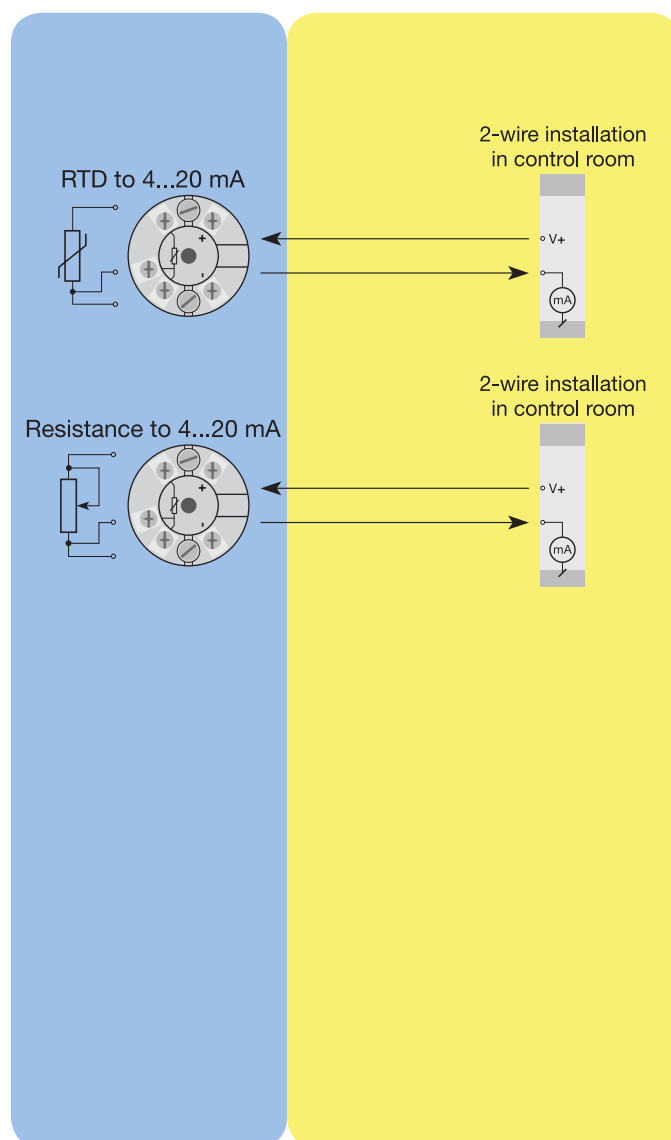
- Linearised temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.

**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 3-wire connection.

**Mounting / installation:**

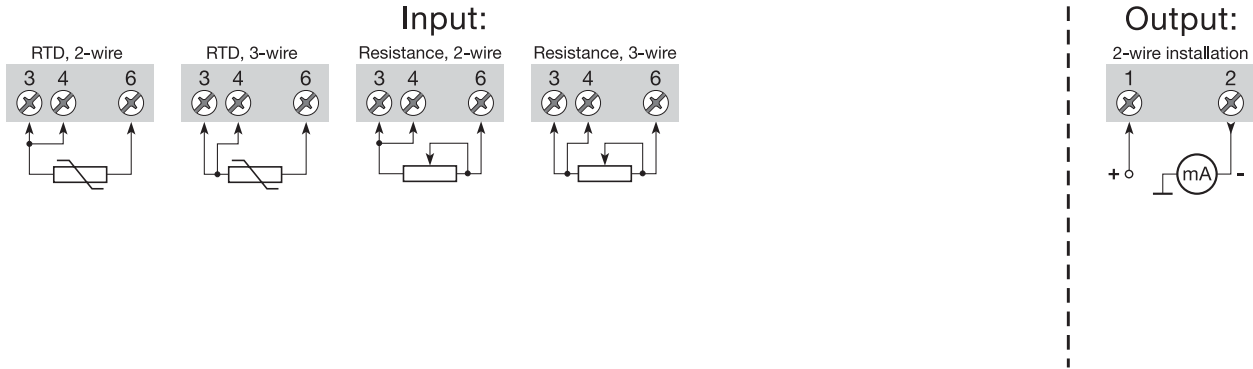
- For DIN form B sensor head mounting.
- **NB:** As Ex barrier we recommend 5104B, 5114B, or 5116B.



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, 5333B .....	8.0...30 VDC
5333C and D .....	8.0...28 VDC
Internal consumption .....	25 mW...0.8 W
Voltage drop .....	8 VDC
Warm-up time .....	5 min.
Communications interface .....	Loop Link
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 60068-2-6 Test FC
Lloyd's specification no. 1 .....	4 g / 2...100 Hz
Max. wire size .....	1 x 1.5 mm <sup>2</sup> stranded wire
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 / I.S. data:

Signal output / supply, terminal 1 and 2:

U <sub>i</sub> .....	: 30 VDC
I <sub>i</sub> .....	: 120 mADC
P <sub>i</sub> .....	: 0.84 W
L <sub>i</sub> .....	: 10 µH
C <sub>i</sub> .....	: 1.0 nF

#### EEx / I.S. approval:

KEMA 03ATEX1535 X .....	Ex II 1 GD, T80°C...T105°C
	EEx ia IIC T6 / T4
Max. amb. temp. for T1...T4 .....	85°C
Max. amb. temp. for T5 and T6 .....	60°C
ATEX, applicable in zone .....	0, 1, 2, 20, 21 or 22
FM, applicable in .....	IS, Cl. I, DIV. 1, Gr. A, B, C, D
	IS, Cl. I, Zone 0, AEx ia IIC
Entity, FM Installation Drawing No. ...	5300Q502
CSA, applicable in .....	IS, Cl. I, DIV. 1, Gr. A, B, C, D
	Ex ia IIC
Installation Drawing No. ....	533XQC03

#### Marine approval:

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

#### Observed authority requirements: Standard:

EMC 2004/108/EC	Emission and immunity .....	EN 61326
ATEX 94/9/EC .....		EN 50014, EN 50020,
		EN 50281-1-1 and
		EN 50284
FM, ASCN .....		3600, 3611, 3610
CSA, CAN / CSA .....		C22.2 No. 157,
		E60079-11, UL 913

Of span = Of the presently selected range