

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:

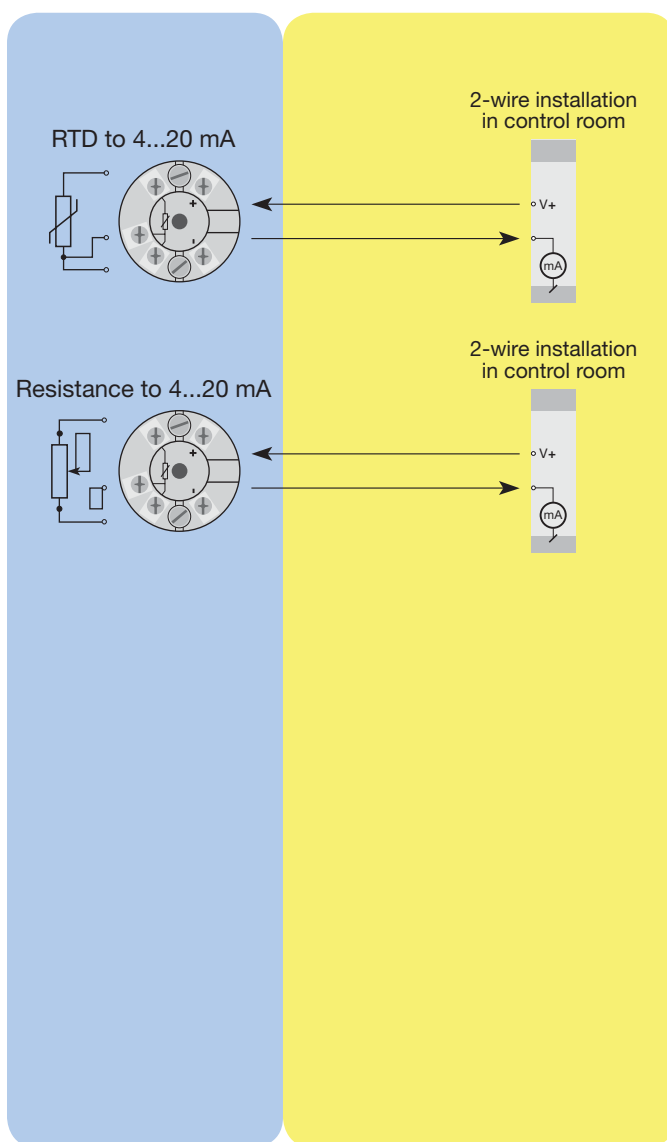
- Linearised temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.

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:

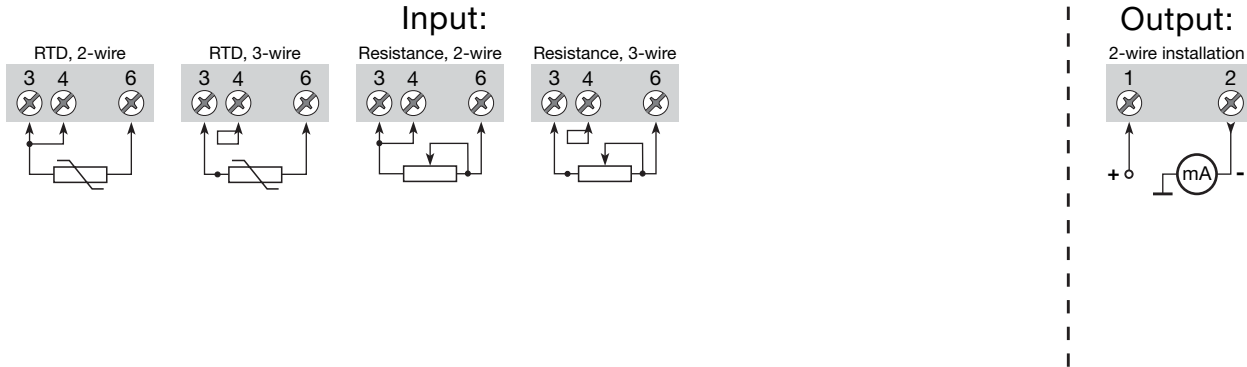
- For DIN form B sensor head mounting.
- **NB:** As Ex barrier we recommend 5104B, 5114B, or 5116B.



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 ² stranded wire
Humidity	< 95% RH (non-cond.)
Dimensions.....	Ø 44 x 20.2 mm
Protection degree (encl. / terminal) ...	IP68 / IP00
Weight	50 g

Electrical specifications, input:

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	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 _{supply} - 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

EEx / I.S. approval:

KEMA 03ATEX1535 X.....	Ex II 1 GD, T80°C...T105°C
	EEx ia IIC T6 / T4
Max. amb. temperature for T1...T4 ...	85°C
Max. amb. temperature for T5 and T6 ..	60°C
ATEX, applicable in zone	0, 1, 2, 20, 21 or 22

Ex / I.S. data:

Signal output / supply, terminal 1 to 2:

U _i	: 30 VDC
I _j	: 120 mADC
P _i	: 0.84 W
L _i	: 10 µH
C _i	: 1.0 nF

Sensor input, terminal 3, 4 and 6:

U _o	: 27 VDC
I _o	: 7 mA
P _o	: 45 mW
L _o	: 35 mH
C _o	: 90 nF

FM, applicable in

IS, Cl. I, Div. 1, Gr. A, B, C, D
IS, Cl. I, Zone 0, AEx ia IIC 5300Q502

FM Installation Drawing No.....

CSA, applicable in

IS, Cl. I, Div. 1, Gr. A, B, C, D
IS, Cl. I, Zone 0, Ex ia IIC 533XQC03

CSA Installation Drawing No.....

Marine approval:

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

GOST R approval:

VNIIFTRI, Cert No. Ross DK.GB06.V00100
Ex Permit

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	3600, 3611, 3610
CSA, CAN / CSA	C22.2 No. 157, E60079-11, UL 913

Of span = Of the presently selected range



thermo-electra

measurement and control technics

P.O. box 73
2640 AB Pijnacker, The Netherlands
Phone: +31 15 362 12 00
Fax: +31 15 369 40 82
E-mail: mail@thermo.nl
Internet: www.thermo-electra.com

5333BY109-UK (0820)