

2-WIRE TRANSMITTER WITH HART® PROTOCOL



- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- HART® communication
- Galvanic isolation
- For DIN form B sensor head mounting



Application:

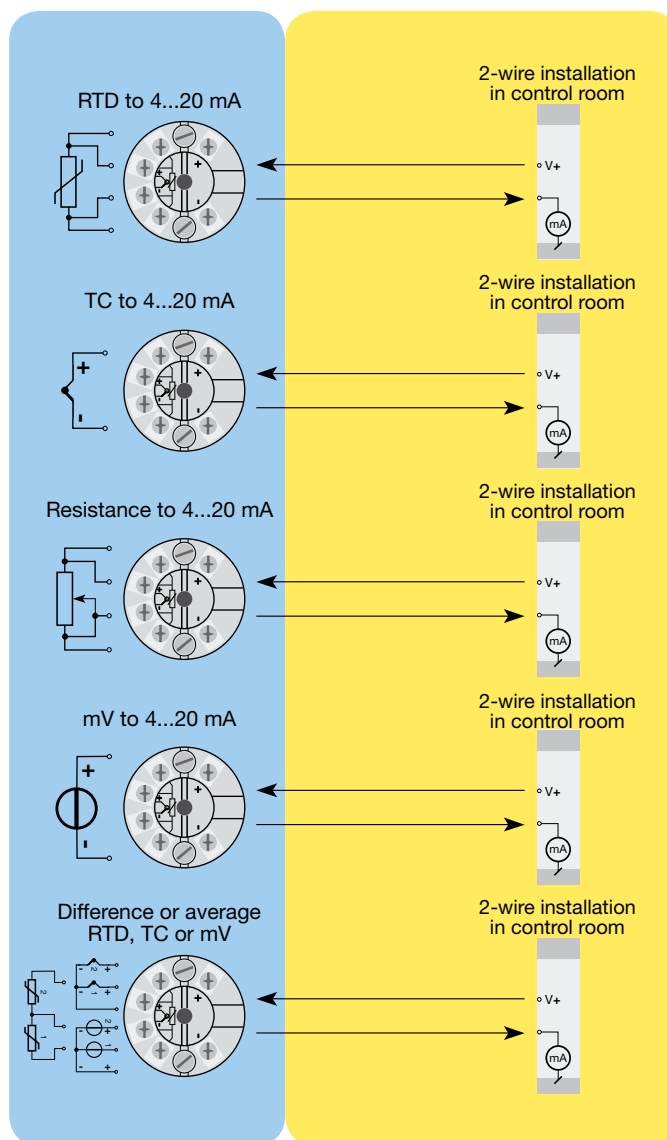
- Linearised temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Difference or average temperature measurement of 2 resistance or TC sensors.
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.
- Connection of up to 15 transmitters to a digital 2-wire signal with HART® communication.

Technical characteristics:

- Within a few seconds the user can program PR5335D 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.
- The 5335D has been designed according to strict safety requirements and is thus suitable for application in SIL 2 installations.
- Continuous check of vital stored data for safety reasons.
- Sensor error detection according to the guidelines in NAMUR NE 89.

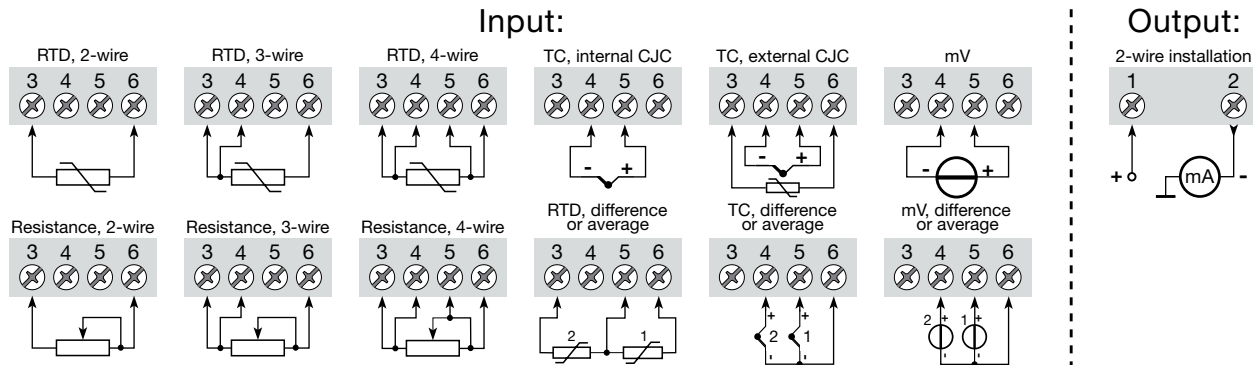
Mounting / installation:

- For DIN form B sensor head mounting.
- **NB:** As Ex barrier we recommend 5106B.



Type	Version
5335	CSA, FM & ATEX : D

Connections:



Electrical specifications:

Specifications range:

-40°C to +85°C

Common specifications:

Supply voltage..... 8.0...30 VDC
 Voltage drop..... 8.0 VDC
 Isolation voltage, test / operation..... 1.5 kVAC / 50 VAC
 Communications interface..... Loop Link & HART®
 Signal / noise ratio..... Min. 60 dB
 Signal dynamics, input..... 22 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	$\leq \pm 0.05\%$ of span	$\leq \pm 0.005\%$ of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
Pt100 and Pt1000	$\leq \pm 0.1^\circ\text{C}$	$\leq \pm 0.005^\circ\text{C}/^\circ\text{C}$
Ni100	$\leq \pm 0.2^\circ\text{C}$	$\leq \pm 0.005^\circ\text{C}/^\circ\text{C}$
Lin. R	$\leq \pm 0.1 \Omega$	$\leq \pm 5 \text{ m}\Omega / ^\circ\text{C}$
Volt	$\leq \pm 10 \mu\text{V}$	$\leq \pm 0.5 \mu\text{V} / ^\circ\text{C}$
TC type: E, J, K, L, N, T, U	$\leq \pm 0.5^\circ\text{C}$	$\leq \pm 0.025^\circ\text{C} / ^\circ\text{C}$
TC type: B, R, S, W3, W5	$\leq \pm 1^\circ\text{C}$	$\leq \pm 0.1^\circ\text{C} / ^\circ\text{C}$

EMC immunity influence.....	$< \pm 0.1\%$ of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	$< \pm 1\%$ 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..... $\varnothing 44 \times 20.2 \text{ mm}$
 Protection degree (encl. / terminals).... IP68 / IP00

Electrical specifications, input:

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

RTD and linear resistance input:

RTD type	Min. value	Max. value	Min. span	Standard
Pt100	-200°C	+850°C	10°C	IEC 60751
Ni100	-60°C	+250°C	10°C	DIN 43760
Lin. R	0 Ω	7000 Ω	10 Ω	-----

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

Sensor current..... Nom. 0.2 mA

Voltage input:

Measurement range..... -800...+800 mV

Min. span..... 2.5 mV

Input resistance..... 10 M Ω

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

Cold junction compensation..... $< \pm 1.0^\circ\text{C}$

Current output:

Signal range..... 4...20 mA

Min. signal range..... 16 mA

Updating time..... 440 ms

Load resistance..... $\leq (V_{\text{supply}} - 8) / 0.023 [\Omega]$

Sensor error detection:

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

Ex / I.S. approval:

KEMA 03ATEX1537..... 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. 5335QE01

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..... 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

INMETRO 09/UL-BRCO-0002..... BR-Ex ia IIC T4 or T6
 or -40°C $\leq T_{\text{amb.}}$ $\leq$ +85°C,
 or -40°C $\leq T_{\text{amb.}}$ $\leq$ +60°C

Marine approval:

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

GOST R approval:

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

Observed authority requirements: Standard:

EMC 2004/108/EC..... EN 61326-1

ATEX 94/9/EC..... EN 60079-0, -11, -26

EN 61241-0, -11

FM..... 3600, 3611, 3610

CSA, CAN / CSA..... C22.2 No. 157,

E60079-11, UL 913

INMETRO..... IEC 60079-0, -11

Of span = Of the presently selected range