



## 2-wire transmitter with HART<sup>®</sup> protocol

### 5335D

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- HART<sup>®</sup> 5 protocol
- Galvanic isolation
- For DIN form B sensor head mounting



#### Application

- Linearized 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 analog 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<sup>®</sup> communication.

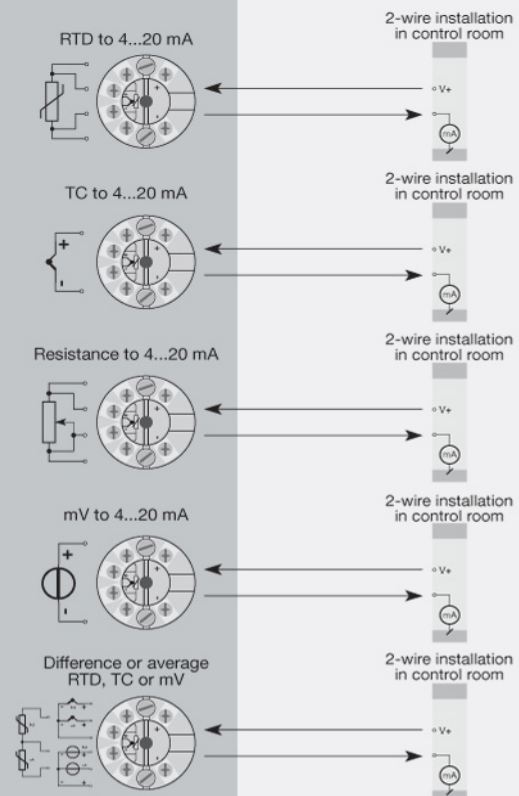
#### Technical characteristics

- 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 5335A has been designed according to strict safety requirements and is therefore 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 NE89.

#### Mounting / installation

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

#### Connections



**Order:**

Type
5335D

### Environmental Conditions

Specifications range.....	-40°C to +85°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree (encl./terminal).....	IP68 / IP00

### Mechanical specifications

Dimensions.....	Ø 44 x 20.2 mm
Weight approx.....	50 g
Wire size.....	1 x 1.5 mm <sup>2</sup> stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6 Test FC
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

### Common specifications

Supply voltage.....	8.0...30 VDC
Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
Warm-up time.....	30 s
Communications interface.....	Loop Link & HART
Signal / noise ratio.....	Min. 60 dB
Response time (programmable).....	1...60 s
Accuracy.....	Better than 0.05% of selected range
Signal dynamics, input.....	22 bit
Signal dynamics, output.....	16 bit
Effect of supply voltage change.....	< 0.005% of span / VDC
EMC immunity influence.....	< ±0.1% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

### Input specifications

Max. offset.....	50% of selected max. value
RTD input.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.), RTD.....	5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5
Cold junction compensation (CJC).....	< ±1.0°C
Sensor error detection, TC.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA
Voltage input: Measurement range.....	-800...+800 mV
Min. measurement range (span), voltage input.....	2.5 mV
Input resistance, voltage input.....	10 MΩ

### Output specifications

Current output: Signal range.....	4...20 mA
Min. signal range.....	16 mA
Load resistance, current output.....	≤ (Vsupply - 8) / 0.023 [Ω]
Load stability, current output.....	≤0.01% of span/100 Ω
Sensor error detection, current output.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
*of span.....	= of the presently selected range

### Approvals

EMC.....	EN 61326-1
ATEX.....	KEMA 03ATEX1537
IECEx.....	KEM 10.0083X
FM.....	2D5A7
CSA.....	1125003
INMETRO.....	NCC 12.0844 X
GOST R.....	Yes
GOST Ex.....	Yes
DNV Marine.....	Stand. f. Certific. No. 2.4
Functional safety.....	Hardware assessed for use in SIL applications