



2-wire transmitter with HART protocol

5335D

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- HART 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 communication.

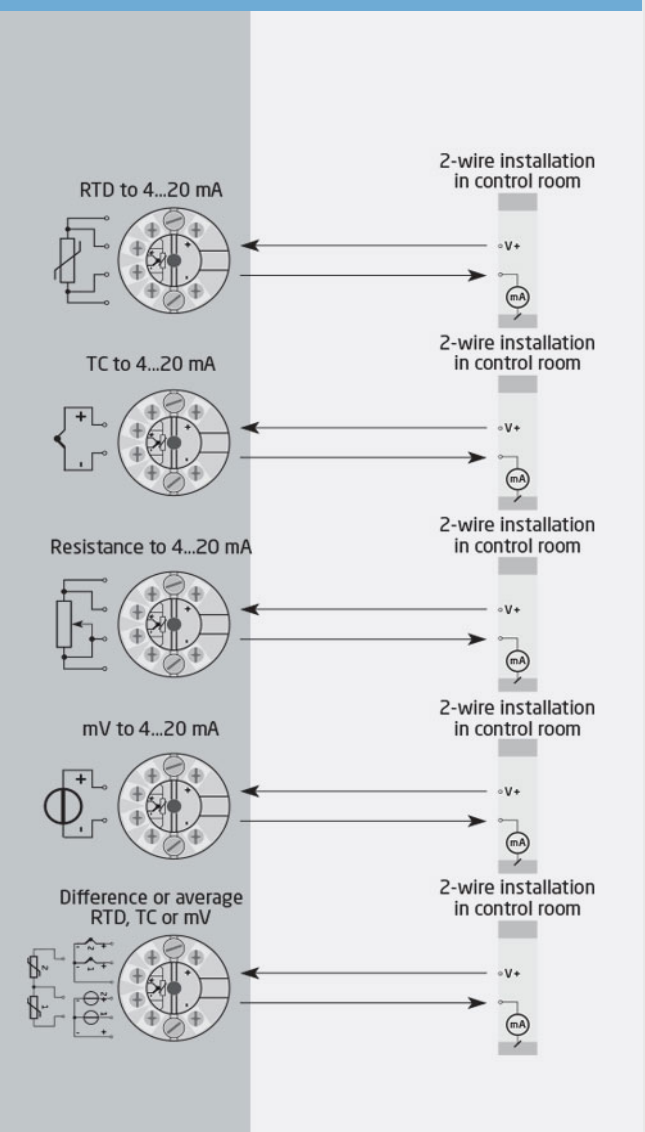
Technical characteristics

- 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 therefore suitable for application in SIL 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.

Applications



Order

| Type | Version |
|------|---|
| 5335 | Zone 0, 1, 2, 21, 22, M1 / DIV. 1, DIV. 2 : D |

Environmental Conditions

| | |
|---|----------------------|
| Operating temperature..... | -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 ² stranded wire |
| Screw terminal torque..... | 0.4 Nm |
| Vibration..... | IEC 60068-2-6 |
| 2...25 Hz..... | ±1.6 mm |
| 25...100 Hz..... | ±4 g |

Common specifications

Supply

| | |
|---------------------|--------------|
| Supply voltage..... | 8.0...30 VDC |
|---------------------|--------------|

Isolation voltage

| | |
|--|-------------------|
| Isolation voltage, test / working..... | 1.5 kVAC / 50 VAC |
|--|-------------------|

Response time

| | |
|--|-------------------------------------|
| Response time (programmable)..... | 1...60 s |
| Warm-up time..... | 30 s |
| Programming..... | Loop Link & HART |
| Signal / noise ratio..... | Min. 60 dB |
| 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 NE21, A criterion, burst..... | < ±1% of span |

Input specifications

Common input specifications

| | |
|------------------|----------------------------|
| Max. offset..... | 50% of selected max. value |
|------------------|----------------------------|

RTD input

| | |
|--------------------------------|---|
| RTD type..... | Pt100, Ni100, lin. R |
| Cable resistance per wire..... | 5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy) |
| Sensor current..... | Nom. 0.2 mA |

| | |
|--|---------------|
| Effect of sensor cable resistance (3-/4-wire)..... | < 0.002 Ω / Ω |
| Sensor error detection..... | 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..... | Yes |

| | |
|--|-------------------|
| Sensor error current: When detecting / else..... | Nom. 33 µA / 0 µA |
|--|-------------------|

Voltage input

| | |
|------------------------------------|----------------|
| Measurement range..... | -800...+800 mV |
| Min. measurement range (span)..... | 2.5 mV |
| Input resistance..... | 10 MΩ |

Output specifications

Current output

| | |
|---|---|
| Signal range..... | 4...20 mA |
| Min. signal range..... | 16 mA |
| Load (@ current output)..... | ≤ (Vsupply - 8) / 0.023 [Ω] |
| Load stability..... | ≤ 0.01% of span / 100 Ω |
| Sensor error indication..... | Programmable 3.5...23 mA |
| NAMUR NE43 Upscale/Downscale of span..... | 23 mA / 3.5 mA = of the presently selected range |

I.S. / Ex marking

| | |
|--------------|---|
| ATEX..... | II 1 G Ex ia IIC T6...T4 Ga, II 2 D Ex ia IIIC Db, I M1 Ex ia I Ma |
| IECEx..... | Ex ia IIC T6...T4 Ga, Ex ia IIIC Db, Ex ia I Ma |
| FM, US..... | Cl. I, Div. 1, Gp. A, B, C, D T4/T6; Cl. I Zone 0, AEx ia IIC T4/T6; Cl. 1, Div. 2, Gp. A, B, C, D, T4/T6 |
| CSA..... | Cl. I, Div. 1, Gp. A, B, C, D Ex ia IIC, Ga |
| INMETRO..... | Ex ia IIC T6...T4 Ga, Ex ia IIIC Da, Ex ia I Ma |

Observed authority requirements

| | |
|-------------|------------------------------|
| EMC..... | 2014/30/EU & UK SI 2016/1091 |
| ATEX..... | 2014/34/EU & UK SI 2016/1107 |
| RoHS..... | 2011/65/EU & UK SI 2012/3032 |
| EAC..... | TR-CU 020/2011 |
| EAC Ex..... | TR-CU 012/2011 |

Approvals

| | |
|-----------------|--|
| ATEX..... | DEKRA 20ATEX0108X |
| IECEX..... | DEK 20.0063X |
| FM..... | FM17US0013X |
| CSA..... | 1125003 |
| INMETRO..... | DEKRA 18.0002X |
| DNV Marine..... | TAA0000101 |
| EAC Ex..... | RU C-DK.HA65.B.00355/19 |
| SIL..... | Hardware assessed for use in SIL applications |