PERFORMANCE MADE SMARTER



## 2-wire transmitter with HART protocol

# 5335A

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- HART 5 protocol
- Programmable sensor error value
- 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.

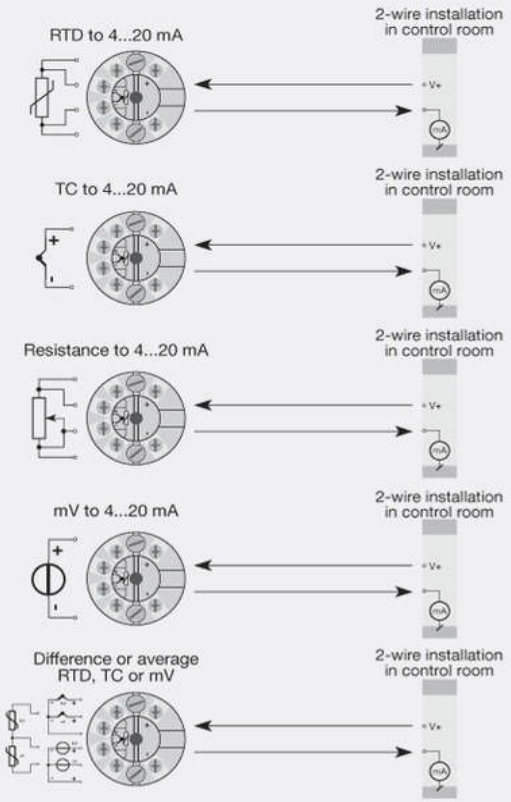
### Technical characteristics

- Within a few seconds the user can program PR5335A 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 or DIN rail mounting with the PR fitting type 8421.

### Applications

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Order:

| Type |
| --- |
| 5335A |

## 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...35 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 | 23 mA / 3.5 mA |
| of span | = of the presently selected range |

## Observed authority requirements

| | |
| --- | --- |
| EMC | 2014/30/EU |
| EAC | TR-CU 020/2011 |

## Approvals

| | |
| --- | --- |
| ATEX 2014/34/EU | KEMA 03ATEX1508 X |
| IECEx | KEM 10.0083X |
| INMETRO | DEKRA 18.0002X |
| DNV-GL Marine | Stand. f. Certific. No. 2.4 |
| SIL | Hardware assessed for use in SIL applications |