



## 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.

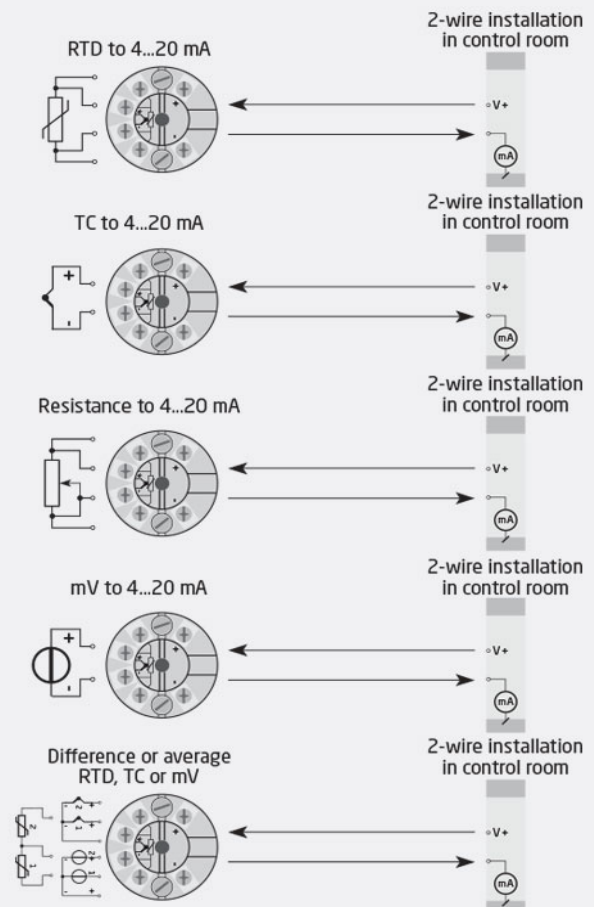
#### Technical characteristics

- 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 provides the required failure data (SFF and PFDAVG) for SIL 2 applications as per IEC 61508 / IEC 61511.
- 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



## Order

Type	Version
5335	Zone 2 / Div. 2 : A

### 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 <sup>2</sup> 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
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#### Isolation voltage

Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
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#### Response time

Response time (programmable).....	1...60 s
Warm-up time.....	30 s
Programming.....	Loop Link & HART
Signal / noise ratio.....	> 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
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#### 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 3 G Ex nA [ic] IIC T6...T4 Gc, II 3 G Ex ec [ic] IIC T6...T4 Gc, II 3 G Ex ic IIC T6...T4 Gc, II 3 D Ex ic IIIC Dc
IECEx.....	Ex nA [ic] IIC T6...T4 Gc, Ex ec [ic] IIC T6...T4 Gc, Ex ic IIC T6...T4 Gc, Ex ic IIIC Dc
CSA.....	Cl. I, Div. 2, Gp. A, B, C, D T6...T4, Ex nA[ic] IIC T6...T4 Gc
INMETRO.....	Ex ec [ic] IIC T6...T4 Gc, Ex ic IIC T6...T4 Gc, Ex ic IIIC Dc

### 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 20ATEX0109X
IECEX.....	DEK 20.0063X
CSA.....	1125003
INMETRO.....	DEKRA 23.0011X
DNV Marine.....	TAA0000101
SIL.....	Hardware assessed for use in SIL applications