



## 2-wire programmable transmitter

### 5333A

- RTD or Ohm input
- High measurement accuracy
- 3-wire connection
- Programmable sensor error value
- For DIN form B sensor head mounting



#### Application

- Linearized temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analog current signal, for instance from valves or Ohmic level sensors.

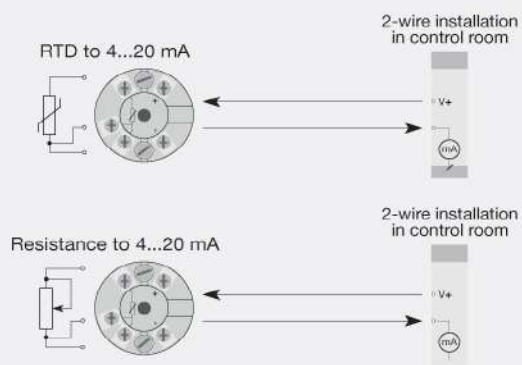
#### Technical characteristics

- Within a few seconds the user can program PR5333A to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

#### Mounting / installation

- For DIN form B sensor head or DIN rail mounting with the PR fitting type 8421.

#### Applications



## Order

| Type | Version             |
|------|---------------------|
| 5333 | 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  |
| Internal power dissipation..... | 25 mW...0.8 W |

### Response time

|                                      |                                |
|--------------------------------------|--------------------------------|
| Response time (programmable).....    | 0.33...60 s                    |
| Voltage drop.....                    | 8.0 VDC                        |
| Warm-up time.....                    | 5 min.                         |
| Programming.....                     | Loop Link                      |
| Signal / noise ratio.....            | Min. 60 dB                     |
| Accuracy.....                        | Better than 0.1% of sel. range |
| Signal dynamics, input.....          | 19 bit                         |
| Signal dynamics, output.....         | 16 bit                         |
| Effect of supply voltage change..... | < 0.005% of span / VDC         |
| EMC immunity influence.....          | < ±0.5% 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.....                  | 10 Ω (max.)          |
| Sensor current.....                             | > 0.2 mA, < 0.4 mA   |
| Effect of sensor cable resistance (3-wire)..... | < 0.002 Ω / Ω        |
| Sensor error detection.....                     | Yes                  |

### Linear resistance input

|                                   |               |
|-----------------------------------|---------------|
| Linear resistance min....max..... | 0 Ω...10000 Ω |
|-----------------------------------|---------------|

## 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              |

### Common output specifications

|                    |                                   |
|--------------------|-----------------------------------|
| Updating time..... | 135 ms                            |
| of span.....       | = 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

|                 |                             |
|-----------------|-----------------------------|
| DNV Marine..... | TAA0000101                  |
| ATEX.....       | DEKRA 20ATEX0106X           |
| IECEx.....      | DEK 20.0062X                |
| CSA.....        | 1125003                     |
| INMETRO.....    | DEKRA 23.0010X              |
| EAC Ex.....     | EAEU KZ 7500361.01.01.08756 |