2-wire programmable transmitter

5333D

- 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 PR5333D 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 mounting.
### 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 mm² 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
  - 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 1 G Ex ia IIC T4, T6 Ga, II 1 D Ex ia IIIC Da, I M1 Ex ia I Ma
- IECEx: Ex ia IIC...T6 Ga, Ex ia IIIC Da, Ex ia I Ma
- 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

### Observed authority requirements
- EMC: 2014/30/EU
- ATEX: 2014/34/EU
- RoHS: 2011/65/EU
- EAC: TR-CU 020/2011
- EAC Ex: TR-CU 012/2011
- Approvals
  - DNV-GL Marine: TAA0000101
  - ATEX: KEMA 03ATEX1535 X
  - FM: DEK 10.0036X
  - CSA: KEMA 03ATEX1535 X
  - INMETRO: DEKRA 16.0014 X
  - EAC: RU C-DK.HA65.B.00355/19

### Specifications
- Dimensions: Ø 44 x 20.2 mm
- Weight: 50 g
- Wire: 1 x 1.5 mm² stranded wire
- Screw terminal: 0.4 Nm
- Vibration: IEC 60068-2-6
  - 2...25 Hz: ±1.6 mm
  - 25...100 Hz: ±4 g
- Supply voltage: 8.0...30 VDC
- Internal power dissipation: 25 mW...0.8 W
- Response time: 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
- Max. offset: 50% of selected max. value
- RTD type: Pt100, Ni100, lin. R
- Cable resistance: 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: 0 Ω...10000 Ω
- Signal range: 4...20 mA
- Min. signal range: 16 mA
- Load: ≤ (Vsupply - 8) / 0.023 [Ω]
- Load stability: < 0.01% of span / 100 Ω
- Sensor error indication: Programmable 3.5...23 mA
- NAMUR NE43: 23 mA / 3.5 mA
- Updating time: 135 ms
- of span: = of the presently selected range