



## 2-wire transmitter with HART protocol

### 5337D

- RTD, TC, Ohm, and bipolar mV input
- 2 analog inputs and 5 device variables with status available
- HART protocol revision selectable from HART 5 or HART 7
- Hardware assessed for use in SIL applications
- Mounting in hazardous gas and dust area



#### Application

- Linearized temperature measurement with TC and RTD sensors e.g. Pt100 and Ni100.
- HART communication and 4...20 mA analog PV output for individual, difference or average temperature measurement of up to two RTD or TC input sensors.
- Conversion of linear resistance to a standard analog current signal, e.g. from valves or Ohmic level sensors.
- Amplification of bipolar mV signals to standard 4...20 mA current signals.
- Up to 63 transmitters (HART 7) can be connected in a multidrop communication setup.

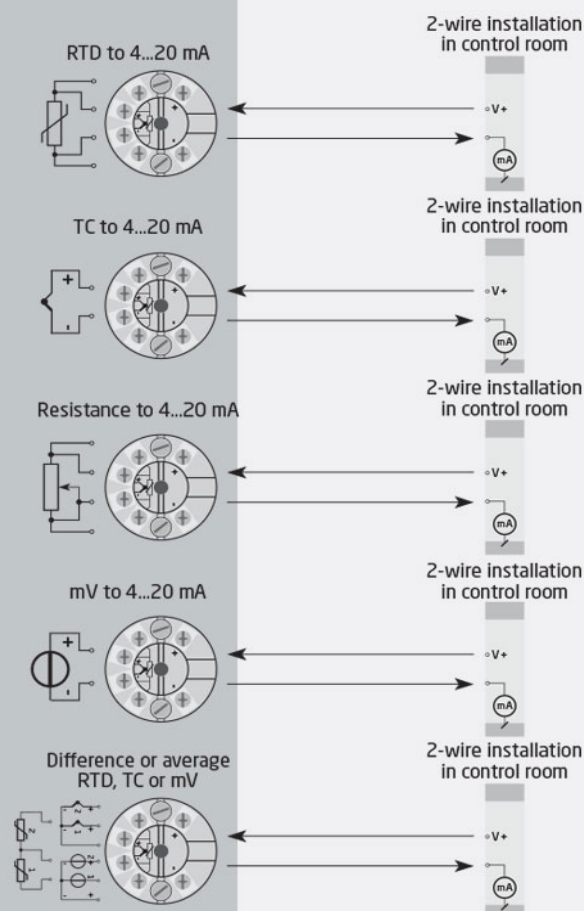
#### Technical characteristics

- HART protocol revision can be changed by user configuration to either HART 5 or HART 7 protocol.
- The HART 7 protocol offers:
  - Long Tag numbers of up to 32 characters.
  - Enhanced Burst Mode and Event notification with time stamping.
  - Device variable and status mapping to any dynamic variable PV, SV, TV or QV.
  - Process signal trend measurement with logs and summary data.
  - Automatic event notification with time stamps.
  - Command aggregation for higher communication efficiency.
- 5337D is designed according to strict safety requirements and is therefore suitable for applications in SIL installations.
- Continuous check of vital stored data.
- Meeting the NAMUR NE 21 recommendations, the 5337 HART transmitter ensures top measurement performance in harsh EMC environments. Additionally, the 5337D meets NAMUR NE43 and NE89 recommendations.

#### Mounting / installation

- For DIN form B sensor head mounting.
- Configuration via standard HART communication interfaces or by PR 5909 Loop Link.

#### Applications



## Order

| Type | Version                                       |
|------|-----------------------------------------------|
| 5337 | 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 <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...30 VDC |
|---------------------|--------------|

#### Isolation voltage

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

#### Response time

|                                                            |                                     |
|------------------------------------------------------------|-------------------------------------|
| Response time (programmable).....                          | 1...60 s                            |
| Voltage drop.....                                          | 8.0 VDC                             |
| 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                              |
| 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.....                  | Pt100/100/200/500/1000;<br>Ni50/100/120/1000                            |
| Cable resistance per wire..... | 5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy) |
| Sensor current.....            | Nom. 0.2 mA                                                             |

#### TC input

|                                       |                                                            |
|---------------------------------------|------------------------------------------------------------|
| Thermocouple type.....                | B, E, J, K, L, N, R, S, T, U, W3, W5, LR                   |
| Cold junction compensation (CJC)..... | Constant, internal or external via a Pt100 or Ni100 sensor |

#### 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] |
| Sensor error indication.....      | Programmable 3.5...23 mA    |
| NAMUR NE43 Upscale/Downscale..... | 23 mA / 3.5 mA              |

#### Common output specifications

|                              |                   |
|------------------------------|-------------------|
| Updating time.....           | 440 ms            |
| HART protocol revisions..... | HART 7 and HART 5 |

### 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 Db, 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

|                 |                                               |
|-----------------|-----------------------------------------------|
| DNV Marine..... | TAA0000101                                    |
| ATEX.....       | DEKRA 20ATEX0108X                             |
| IECEx.....      | DEK 20.0063X                                  |
| FM.....         | FM17US0013X                                   |
| CSA.....        | 1125003                                       |
| INMETRO.....    | DEKRA 23.0011X                                |
| EAC Ex.....     | RU C-DK.HA65.B.00355/19                       |
| SIL.....        | Hardware assessed for use in SIL applications |