PR electronics

2-wire transmitter with HART® protocol

5337D

– RTD, TC, Ohm, and bipolar mV input

– 2 analogue 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.
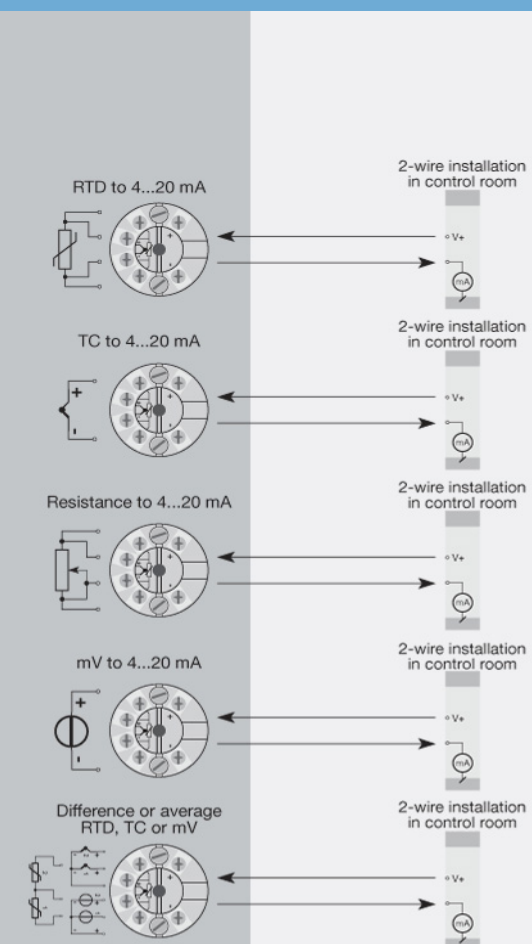- Up to 63 transmitters (HART® 7) can be connected in a multidrop communication setup.

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.
- PR 5106B or 9106B is recommended as a barrier for 5337D.

Connections

RTD to 4...20 mA — 2-wire installation in control room

TC to 4...20 mA — 2-wire installation in control room

Resistance to 4...20 mA — 2-wire installation in control room

mV to 4...20 mA — 2-wire installation in control room

Difference or average RTD, TC or mV — 2-wire installation in control room

Environmental Conditions

Specifications range.. -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 : 2007
Vibration: 2...25 Hz.. ±1.6 mm
Vibration: 25...100 Hz.................................... ±4 g

Common specifications

Supply voltage.. 8.0...30 VDC
Voltage drop.. 8.0 VDC
Isolation voltage, test /
working.. 1.5 kVAC / 50 VAC
Communications interface.............................. Loop Link & HART®
Signal / noise ratio... > 60 dB
Response time (programmable).................... 1...60 s
Accuracy... Better than 0.05% of selected range
EMC immunity influence................................. < ±0.1% of span
Extended EMC immunity: NAMUR
NE 21, A criterion, burst................................. < ±1% of span

Input specifications

Max. offset.. 50% of selected max. value
RTD input.. Pt50, Pt100, Pt200, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Cable resistance per wire
(max.), RTD.. 5 Ω (up to 50 Ω per wire is possible with reduced measurement accuracy)
Sensor current, RTD...................................... 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),
voltage input.. 2.5 mV
Input resistance, voltage
input.. 10 MΩ

Output specifications

Current output: Signal range......................... 4…20 mA
Min. signal range.. 16 mA
Updating time.. 440 ms
Load resistance, current output.................... ≤ (Vsupply - 8) / 0.023 [Ω]
Sensor error indication, current
output.. Programmable 3.5…23 mA
NAMUR NE 43 Upscale/Downscale............. 23 mA / 3.5 mA
HART protocol revisions................................ HART 5 and HART 7

Approvals

EMC.. EN 61326-1
ATEX 2004/108/EC.. KEMA 03ATEX1537
IECEx.. KEM 10.0083X
FM... 2D5A7
CSA... 1125003
INMETRO.. NCC 12.0844 X
EAC TR-CU 020/2011.................................... EN 61326-1
EAC Ex TR-CU 012/2011.............................. RU C-DK.GB08.V.00410
DNV Marine... Stand. f. Certific. No. 2.4
SIL... Hardware assessed for use in SIL applications