

5337D 2-wire transmitter with HART protocol

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.

Specification

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 ² 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	Pt50/100/200/500/1000; 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 M Ω

Output specifications

Current output

Signal range	4...20 mA
Min. signal range	16 mA
Load (@ current output)	$\leq (V_{\text{supply}} - 8) / 0.023$ [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 Da, 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 18.0002X

EAC Ex RU C-DK.HA65.B.00355/19

SIL Hardware assessed for use in SIL applications