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.
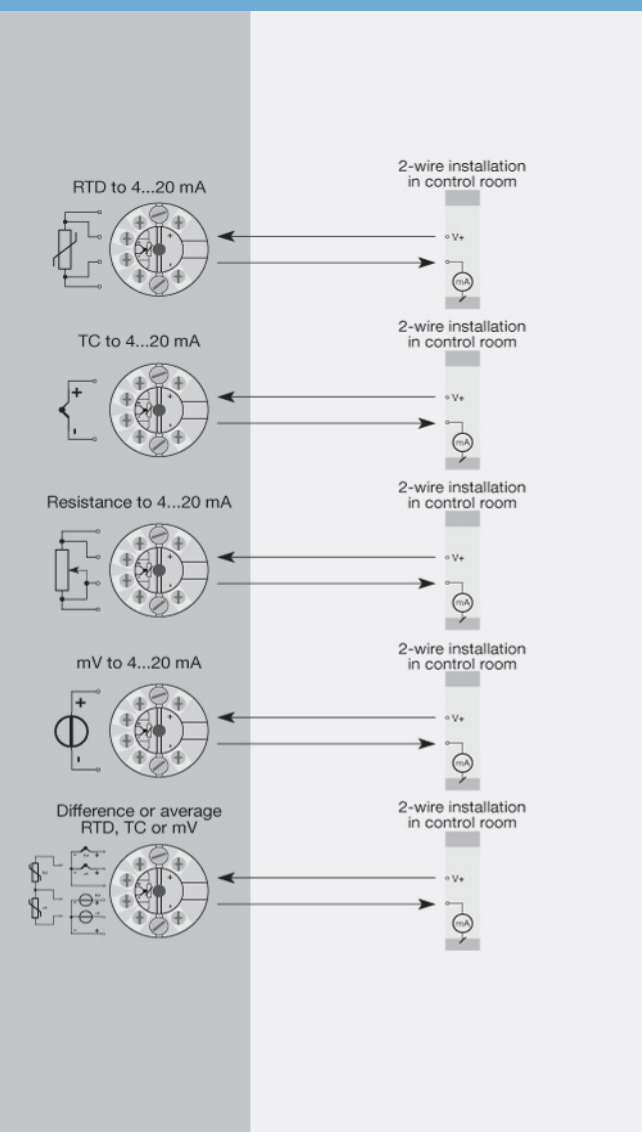
Technical characteristics

• 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

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

Order:

Type
5337D

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 (max.). .... 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

Observed authority requirements

EMC... 2014/30/EU
EAC... TR-CU 020/2011

Approvals

ATEX 2014/34/EU.. KEMA 03ATEX1537
IECEx... KEM 10.0083X
FM... FM17US0013X
CSA... 1125003
INMETRO. .... NCC 12.0844 X
EAC Ex TR-CU 012/2011. .... RU C-DK.GB08.V.00410
DNV-GL Marine. .... Stand. f. Certific. No. 2.4
SIL... Hardware assessed for use
in

SIL applications