2-wire HART 7 temperature transmitter
6437A

- RTD, TC, potentiometer, linear resistance and bipolar mV input
- Single input, dual input or 2 channels (2x4 terminals)
- Wide ambient operating temperature of -50 to +85°C
- Total accuracy from 0.014%
- 2.5 kVAC galvanic isolation
- Full assessment to IEC61508 : 2010 for use in SIL 2/3 applications

Application
- Temperature measurement of a wide range of TC and RTD types.
- Conversion of wide span linear resistance and potentiometer inputs to 4...20 mA.
- Conversion of bipolar mV signals to 4...20 mA.
- Integration into asset management schemes.
- Critical applications requiring superior accuracy and/or sensor redundancy and drift detection.

Technical characteristics
- True dual input transmitter, accepts the widest range of dual input combinations.
- Sensor redundancy - output automatically switches to secondary sensor in event of primary sensor failure, maintaining uptime.
- Sensor drift detection - alerts when sensor differential exceeds user-defined limits, for maintenance optimization.
- Dynamic variable mapping for process data in addition to the primary variable e.g. dual input features such as average, differential and min./max. tracking.
- Groundbreaking digital and analog signal accuracy over full input span and ambient conditions.
- Extensive sensor matching including Callendar Van Dusen and custom linearizations.
- Programmable input limits with runtime metering ensure maximum process traceability and sensor out of range protection.
- IEC 61508 : 2010 full assessment up to SIL 3 together with enhanced EMC Functional Safety testing to IEC 61236-3-1.
- Meets NAMUR NE21, NE43, NE44, NE89 and NE107 compliant diagnostics information.

Mounting / installation / programming
- DIN rail mounting with up to 84 inputs per meter.
- Configuration via PReset using PR5909 Loop Link /HART modem, or by Asset Management tool (e.g. Pactware, AMS, HART communicator) for which all relevant DD, eDD and DTM files are available
- The 6437A can be mounted in zone 2 and zone 22 / Class I, Division 2, Groups A, B, C, D.
Environmental Conditions
Operating temperature: -50°C to +85°C (standard)
Operating range: -40°C to +80°C (SIL)
Storage temperature: -50°C to +85°C
Calibration temperature: 23...25°C
Relative humidity: < 99% RH (non-cond.)
Protection degree: IP20

Mechanical specifications
Dimensions (HxWxD): 109 x 23.5 x 104 mm
Weight (single input / dual input): 150 g / 160 g
Weight (2 channels): 185 g
Wire size: 0.13...2.08 mm² / AWG 26...14 stranded wire
DIN rail type: DIN EN 60715 / 35 mm
Screw terminal torque: 0.5 Nm
Vibration: IEC 60068-2-6
2...25 Hz: ±1.6 mm
25...100 Hz: ±4 g

Common specifications
Supply voltage: 7.5...48** VDC
Power dissipation, per channel: ≤ 850 mW
Additional min. supply voltage: 0.8 V
Min. load resistance at >37: Vsupply – 37 / 23 mA

Isolation voltage
Isolation voltage, test / working: 2.5 kVAC / 55 VAC
Response time
Response time: 70 ms
Programmable damping: 0...60 s
Polarity protection: All inputs and outputs
Warm-up time: < 5 min.
Start-up time: < 2.75 s
Programming: Loop Link & HART
Write protection: Jumper or software
Signal / noise ratio: > 60 dB
Long-term stability, better than: ±0.05% of span / year
(±0.18% of span / 5 years)
Signal dynamics, input: 24 bit
Signal dynamics, output: 18 bit
Effect of supply voltage change: < 0.005% of span / VDC
Accuracy: See manual for details
EMC immunity influence: < ±0.1% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst: < ±1%

Input specifications
RTD input
RTD type: Pt10...10000, Ni10...10000, Cu5...1000
Basic accuracy, e.g. Pt1000: ±0.04°C
Cable resistance per wire: 50 Ω (max.)
Effect of sensor cable resistance: (3/4-wire): < 0.002 Ω / Ω
Sensor current: < 0.15 mA
Sensor error detection: None, Shorted, Broken, Shorted or Broken

TC input
Basic accuracy, e.g. TC K: ± ±0.25°C
Cold junction compensation (CJC): Constant, internal or external via a Pt100 or Ni100 sensor
Sensor error detection: None, Shorted, Broken, Shorted or Broken

Linear resistance input
Measurement range / min. range (span): 0 Ω...100 kΩ / 25 Ω
Cable resistance per wire: 50 Ω
Sensor current: < 0.15 mA
Sensor error detection: None, Broken

Potentiometer input
Potentiometer min...max.: 10 Ω...100 kΩ
Measurement range / min. range (span): 0...100% / 10%
Cable resistance per wire: 50 Ω
Sensor current: < 0.15 mA
Sensor error detection: None, Broken

mV input
Measurement range: -800...+800 mV (bipolar)
Measurement range: -100 to 1700 mV
Min. measurement range (span): 2.5 mV
Input resistance: 10 MΩ
Sensor error detection: None, Broken

Output specifications
Common output specifications
Normal range, programmable: 3.8...20.5 / 20.5...3.8 mA
Extended range (output limits), programmable: 3.5...23 / 23...3.5 mA
Basic accuracy: ± ±1.6 μA (0.01% of full output span)
Updating time: 10 ms
Load (@ current output): ≤ (Vsupply – 7.5)/0.023 [Ω]
Load stability: < 0.01% of span / 100 Ω
Sensor error indication: Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale: > 21 mA / < 3.6 mA
HART protocol revisions: HART 7 and HART 5

Observed authority requirements
EMC: 2014/30/EU
EAC: Pending
RoHS: 2011/65/EU

Approvals
ATEX: DEKRA 18ATEX0135X
IECEEx: DEK Ex. 16.0029X
CSA: 70066266
FM us: FM166US0287X
NAMUR: DEKRA 16.0008 X
NEPSI: DEKRA 1057X
INMETRO: RUSC-DK.GB.98.V.00192
EU RO Mutual Recognition: MRA0000023

SIL 2 / SIL 3 certified & fully assessed acc. to IEC 61508

NB

* / ** See manual for details