PERFORMANCE MADE SMARTER

2-wire HART 7 temperature transmitter

6437A

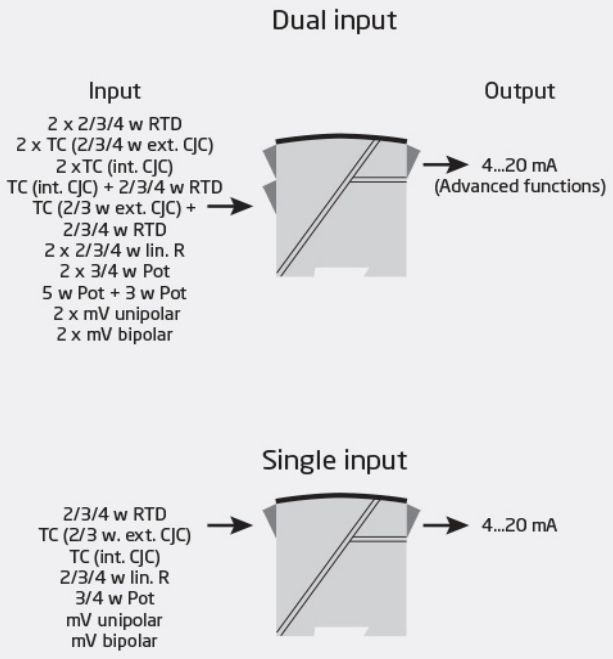
- RTD, TC, potentiometer, linear resistance and bipolar mV input
- Single or true dual inputs with sensor redundancy and drift detection
- Wide ambient operating temperature of -50 to +85°C
- Total accuracy from 0.014%
- 2.5 kVAC galvanic isolation
- Full assessment to IEC61508 : 2010 for use in SIL 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.
- Failure rates for 6437xxSx correspond to Performance Level “d” according to ISO-13849.
- 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).
- The 6437A can be mounted in zone 2 and zone 22 / Class I, Division 2, Groups A, B, C, D.

Applications



Order

Type	Inputs		SIL approval		Marine approval	
6437A	Single input (4 terminals)	: 1	SIL	: S	Yes	: M
	Dual input (8 terminals)	: 2	No SIL	: -	No	: -

Environmental Conditions

Operating temperature	-50°C to +85°C (standard)
Operating temperature	-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
Wire size	0.13...2.08 mm^2 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

Supply voltage	7.5*...48** VDC
Power dissipation, per channel	≤ 850 mW
Additional min. supply voltage when using test terminals	0.8 V
Min. load resistance at >37 V supply	(Vsupply – 37) / 23 mA

Isolation voltage

Isolation voltage, test / working	2.5 kVAC / 55 VAC

Response time

Response time	75 ms
Programmable damping	0...60 s
Polarity protection	All inputs and outputs
Warm-up time	< 5 min.
Start-up time	< 2.75 s
Programming	HART & PR 5909 Loop Link communications interface
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. Pt100	≤ ±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

Thermocouple type	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
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 (max.)	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 (max.)	50 Ω
Sensor current	< 0.15 mA
Sensor error detection	None, Shorted, Broken, Shorted or Broken

mV input

Measurement range	-800...+800 mV (bipolar)
Measurement range	-100...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 & UK SI 2016/1091
EMC	2014/30/EU
RoHS	2011/65/EU & UK SI 2012/3032
ATEX	2014/34/EU & UK SI 2016/1107
EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Approvals

ATEX	DEKRA 18ATEX0135X
IECEx	IECEx DEK. 16.0029X
CSA	CSA 16.70066266
c FM us	FM16US0287X / FM16CA0146X
INMETRO	DEKRA 23.0002X
NEPSI	GYJ23.1253X
EAC Ex	EAEU KZ 7500361.01.01.08756
EU RO MR Type Approval	MRA0000023
SIL	SIL 2 / SIL 3 certified & fully assessed acc. to IEC 61508

NB

* / **	See manual for details