



## 2-wire HART 7 temperature transmitter

### 6437D

- 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.

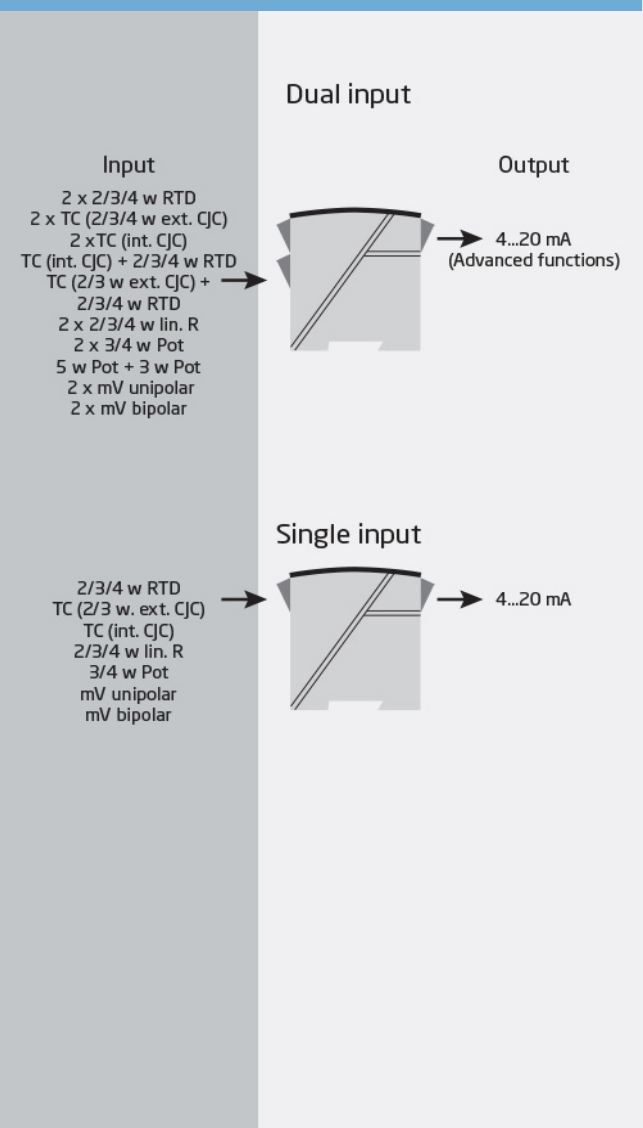
#### Technical characteristics

- 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.
- 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 6437D can be mounted in zone 0, 1, 2 and zone 20, 21, 22 including M1 / Class I, Division 1, Groups A, B, C, D.

#### Applications



## Order

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

## 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
Weight (2 channels).....	185 g
Wire size.....	0.13...2.08 mm <sup>2</sup> 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*...30** 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 / 42 VAC
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### 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. 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 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 8

## Observed authority requirements

EMC.....	2014/30/EU
ATEX.....	2014/34/EU
RoHS.....	2011/65/EU
EAC.....	TR-CU 020/2011
EAC Ex.....	TR-CU 012/2011

## Approvals

ATEX.....	DEKRA 16ATEX0047X
IECEX.....	IECEX DEK. 16.0029X
CSA.....	CSA 16.70066266
c FM us.....	FM16US0287X / FM16CA0146X
INMETRO.....	DEKRA 16.0008 X
NEPSI.....	GYJ18.1057X
EAC Ex.....	RU C-DK.GB.98.V.00192
EU RO MR Type Approval.....	MRA0000023

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

**NB**

\* / \*\*..... See manual for details