PERFORMANCE MADE SMARTER

PROFIBUS PA temperature transmitter

5450A

- PROFIBUS PA profile 4.0
- RTD, TC, potentiometer, linear resistance and bipolar mV input
- Single or true dual inputs with sensor redundancy and drift detection
- Easy Ex i deployment with conformity to FISCO IEC 60079-27
- Accuracy from 0.04°C
- 2.5 kVAC galvanic isolation

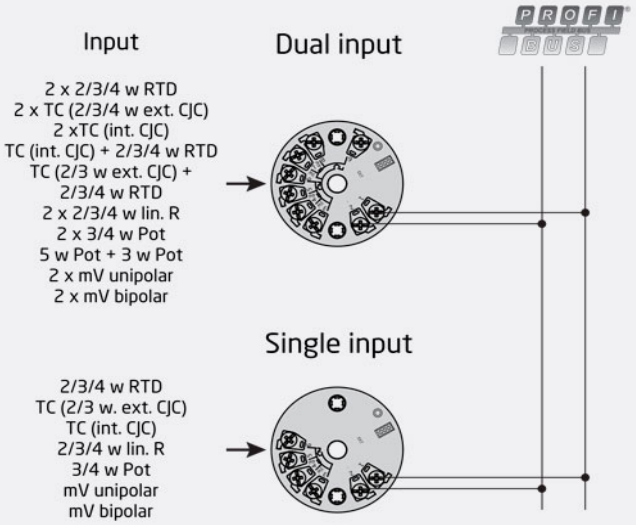
Application
- Temperature measurement of a wide range of TC and RTD types.
- Conversion of wide span linear resistance and potentiometer inputs to PROFIBUS.
- Conversion of bipolar mV signals to PROFIBUS.
- Integration into asset management schemes.
- Critical applications requiring superior accuracy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

Technical characteristics
- True dual input transmitter. High density 7-terminal design accepts the widest range of dual input combinations.
- Sensor drift detection - alerts when sensor differential exceeds user-defined limits, for maintenance optimization.
- Variable mapping for process data 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.
- Meets NAMUR NE21, NE44, NE89 and NE107 compliant diagnostics information.

Programming
- PROFIBUS PA functions and device-specific parameters are configured via fieldbus communication and the associated DD / DTM / GSD device drivers.

Mounting / installation
- For DIN form B sensor head mounting.
- Mounting in zone 2 and zone 22 / Class I, Division 2, Groups A, B, C, D.

Applications



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Order:

Type	Inputs	Reserved
5450A	Single input (4 terminals) : 1 Dual input (7 terminals) : 2	: -

Environmental Conditions

Operating temperature	-40°C to +80°C
Storage temperature	-50°C to +85°C
Calibration temperature	23...25°C
Relative humidity	< 99% RH (non-cond.)
Protection degree (encl./terminal)	IP68 / IP00

Mechanical specifications

Dimensions	Ø 44 x 21.45 mm
Center hole diameter	Ø 6.35 mm / ¼ in
Weight approx.	50 g
Wire size	1 x 1.5 mm^2 stranded wire
Stripping length	7 mm
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	9.0...32 VDC
Supply voltage in FISCO installations	9.0...17.5 VDC
Internal power dissipation	< 352 mW

Isolation voltage

Isolation voltage, test / working	2.5 kVAC / 55 VAC

Response time

Response time	< 400 ms
Programmable damping	0...60 s
Write protection	Jumper
Warm-up time	< 5 min.
Start-up time	< 15 s
Programming	PROFIBUS GSD, DD
Signal / noise ratio	> 60 dB
Long-term stability, first year / 5 years	± 0.05% of reading / ± 0.10% of reading
Updating time, PROFIBUS	< 100 ms
Signal dynamics, input	24 bit
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
Permissible cable resistance per wire	≤ 50 Ω
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
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
Permissible 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%
Permissible cable resistance per wire	≤ 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

PROFIBUS PA connection

PROFIBUS PA protocol	Profile A&B, ver. 4.0 (compatible with 3.02)
PROFIBUS PA protocol standard	EN 50170 vol. 2
PROFIBUS PA address (at delivery)	126
PROFIBUS PA physical layer	2 x function blocks, 1 / 2 transducer block(s)
PROFIBUS PA termination	100 Ω +1 µF

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 24ATEX0007X
IECEx	IECEx DEK. 24.0005X
CSA	CSA25CA80210307
c FM us	FM25US0051X / FM25CA0022X
INMETRO	DEKRA 25.0004X
NEPSI	Pending
EAC Ex	EAEU KZ 7500361.01.01.10203