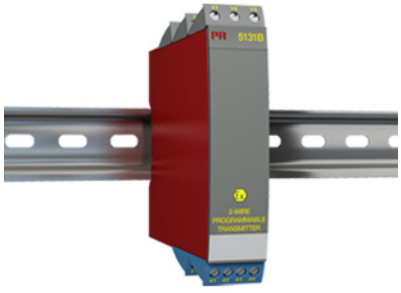
PERFORMANCE MADE SMARTER



2-wire programmable transmitter

5131B

- Input for RTD, TC, mV, linear resistance, mA, and V
- 3.75 kVAC galvanic isolation
- 4...20 mA loop output
- 1- and 2-channel versions
- ATEX Ex / I.S. version
- DIN rail mounting

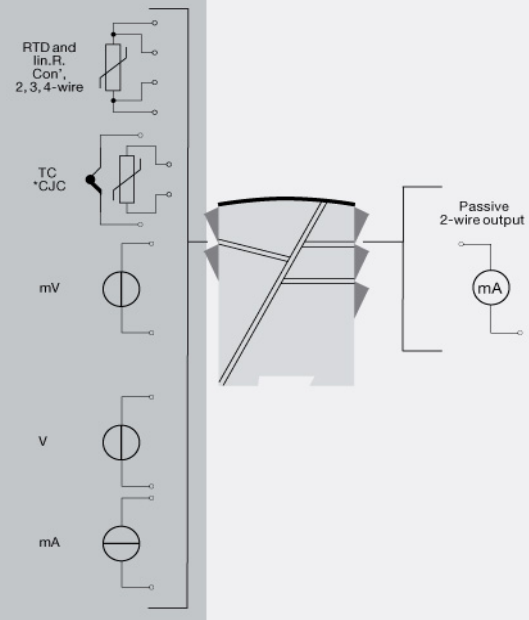
Advanced features
- The 5131 transmitter can be configured with a standard PC and the Loop Link communications unit.

Application
- Independent channel jumper selectable inputs for current/voltage or temperature.
- Current input programmable in range the 0...100 mA and voltage inputs in the range 0...250 VDC.
- Linearized, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, for example from solenoids and butterfly valves or linear movements with attached potentiometer.
- 4- or 3-wire connection with automatic cable compensation or 2-wire connection with programmable cable compensation.
- Configurable sensor error detection including NAMUR NE43.

Technical characteristics
- The 2-channel version has full galvanic isolation between the channels.
- Separation of circuits in PELV/SELV installations.
- I.S. barrier for temperature sensors, potentiometers and current / voltage signals.

Note
- Not suitable for new installations requiring certification to the latest ATEX standards - see ATEX certificate DEMKO 99ATEX124572 and EU Declaration of Conformity for details.

Applications



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Order:

Type	Input		Channels	
5131B	RTD / TC / mV / R	: 1	Single	: A
	mA / V / mV	: 2	Double	: B
	Channel 1, RTD / TC / mV / R Channel 2, mA / V / mV	: 3		

***Note!** For TC inputs with internal CJC, remember to order CJC connectors type 5910Ex (ch. 1) and 5913Ex (ch. 2).

Environmental Conditions

Operating temperature..... -20°C to +60°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20

Mechanical specifications

Dimensions (HxWxD)..... 109 x 23.5 x 130 mm
Weight approx..... 195 g
DIN rail type..... DIN EN 60715/35 mm
Wire size..... 0.13...2.08 mm^2 AWG 26...14 stranded wire
Screw terminal torque..... 0.5 Nm

Common specifications

Supply

Supply voltage..... 7.5...35 VDC
Fuse..... 50 mA SB / 250 VAC

Isolation voltage

Isolation voltage, test / working..... 3.75 kVAC / 250 VAC
PELV/SELV..... IEC 61140

Response time

Temperature input, programmable (0...90%, 100...10%)..... 400 ms...60 s
mA / V input (programmable)..... 250 ms...60 s
Programming..... Loop Link
Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Updating time..... 115 ms (temperature input)
Updating time..... 75 ms (mA / V / mV input)
Signal dynamics, input..... 22 bit
Signal dynamics, output..... 16 bit
Effect of supply voltage change..... < 0.005% of span / VDC
EMC immunity influence..... < ±0.5% 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..... Pt100, Ni100, lin. R
Cable resistance per wire..... 10 Ω (max.)
Sensor current..... Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire)..... < 0.002 Ω / Ω
Sensor error detection..... Yes

TC input

Thermocouple type..... B, E, J, K, L, N, R, S, T, U, W3, W5, LR
Cold junction compensation (CJC)..... < ±1.0°C
Sensor error current..... Nom. 30 µA
Sensor error detection..... Yes

Current input

Measurement range..... 0...100 mA
Min. measurement range (span)..... 4 mA
Input resistance: Supplied unit..... Nom. 10 Ω + PTC 10 Ω
Input resistance: Non-supplied unit..... RSHUNT = ∞, VDROP < 6 V

mV input

Measurement range..... -150...+150 mV

Voltage input

Measurement range..... 0...250 VDC
Min. measurement range (span)..... 5 mV
Input resistance..... Nom. 10 MΩ (≤ 2.5 VDC)
Input resistance..... Nom. 5 MΩ (> 2.5 VDC)
Input resistance..... Nom. 10 MΩ (mV input)

Output specifications

Current output

Signal range..... 4…20 mA
Min. signal range..... 10 mA
Load (@ current output)..... ≤ (Vsupply -7.5)/0.023 [Ω]
Load stability..... ≤ 0.01% of span / 100 Ω
Current limit..... ≤ 28 mA
Sensor error indication..... Programmable 3.5…23 mA
NAMUR NE43 Upscale/Downscale..... 23 mA / 3.5 mA
of span..... = of the presently selected range

Observed authority requirements

EMC..... 2014/30/EU
LVD..... 2014/35/EU
ATEX..... 2014/34/EU
RoHS..... 2011/65/EU
EAC..... TR-CU 020/2011
EAC Ex..... TR-CU 012/2011

Approvals

ATEX..... DEMKO 99ATEX124572, II (1) GD [EEx ia] IIC
EAC Ex..... RU C-DK.HA65.B.00355/19