

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.

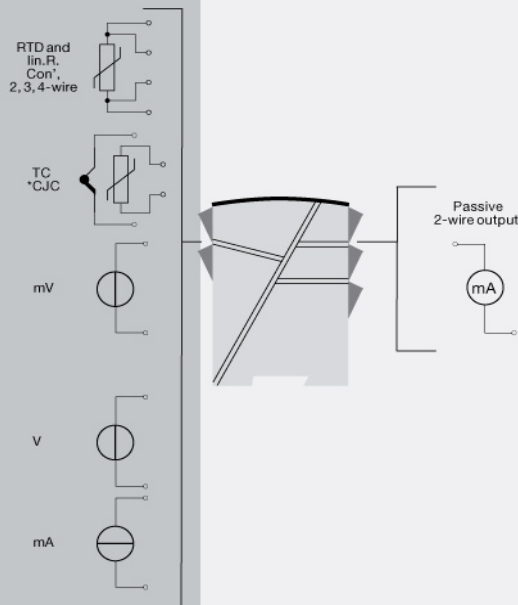
Technical characteristics

- 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



Order:

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

***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 = ∞, VDROPP < 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 [EEEx ia] IIC
EAC Ex.....	EAEU KZ 7500361.01.01.08756