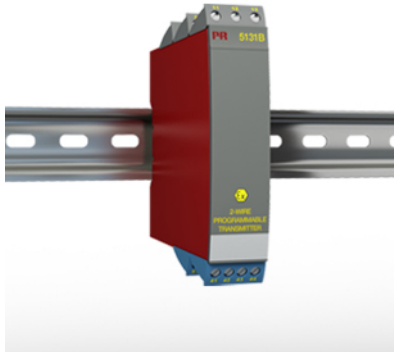


## 2-wire programmable transmitter



### 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.

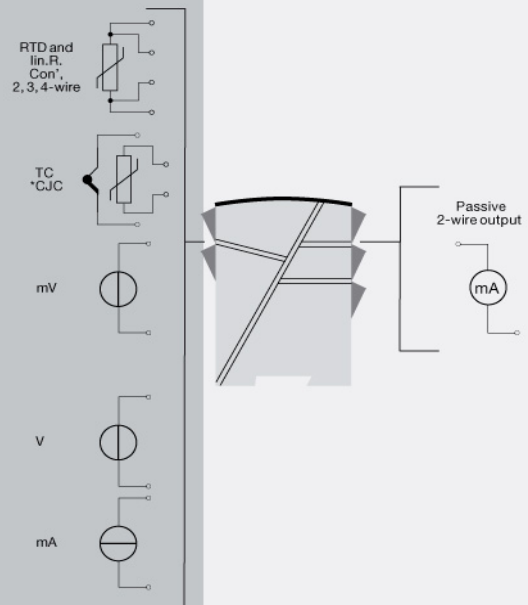
#### Application

- 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

- Analog current output can be configured to any current within the range 0...20 mA.
- Voltage output range is selectable between 0...10 VDC.
- Programming can be performed with or without a power supply.
- 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.

#### Connection



## Environmental Conditions

|                              |                      |
|------------------------------|----------------------|
| Specifications range.....    | -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 46277                             |
| Wire size.....             | 1 x 2.5 mm <sup>2</sup> stranded wire |
| Screw terminal torque..... | 0.5 Nm                                |

## Common specifications

|   |                            |
|---|----------------------------|
| Supply voltage.....   | 7.5...35 VDC               |
| Fuse.....   | 50 mA SB / 250 VAC         |
| Isolation voltage, test / working.....                      | 3.75 kVAC / 250 VAC        |
| Communications interface.....                               | Loop Link                  |
| Signal / noise ratio.....                                   | Min. 60 dB (0...100 kHz)   |
| Response time (0...90%, 100...10%):                         |                            |
| Temperature input (programmable).....                       | 400 ms...60 s              |
| mA / V input (programmable).....                            | 250 ms...60 s              |
| 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 NE 21, A criterion, burst..... | < ±1% of span              |

## Input specifications

|   |  |
|---|--|
| Max. offset.....  | 50% of selected max. value               |
| RTD input.....  | Pt100, Ni100, lin. R                     |
| Cable resistance per wire (max.), RTD.....              | 10 Ω                                     |
| Sensor current, RTD.....                                | Nom. 0.2 mA                              |
| Effect of sensor cable resistance (3-/4-wire), RTD..... | < 0.002 Ω / Ω                            |
| Sensor error detection, RTD.....                        | 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, TC.....                           | Nom. 30 μA                               |
| Sensor error detection, TC.....                         | Yes                                      |
| Current input: Measurement range.....                   | 0...100 mA                               |
| Min. measurement range (span), current input.....       | 4 mA                                     |
| Input resistance: Supplied unit.....                    | Nom. 10 Ω + PTC 10 Ω                     |
| Input resistance: Non-supplied unit.....                | RSHUNT = ∞, VDROPP < 6 V                 |
| Voltage input: Measurement range.....                   | 0...250 VDC                              |
| Voltage input: Measurement range.....                   | -150...+150 mV                           |
| Min. measurement range (span), voltage input.....       | 5 mV                                     |
| Input resistance, voltage input.....                    | Nom. 10 MΩ (≤ 2.5 VDC)                   |
| Input resistance, voltage input.....                    | Nom. 5 MΩ (> 2.5 VDC)                    |
| Input resistance, voltage input.....                    | Nom. 10 MΩ (mV input)                    |

## Output specifications

|   |                                   |
|---|-----------------------------------|
| Max. offset.....                            | 50% of selected max. value        |
| Current output: Signal range.....           | 4...20 mA                         |
| Min. signal range.....                      | 10 mA                             |
| Load resistance, current output.....        | ≤ (Vsupply - 7.5)/0.023 A [Ω]     |
| Load stability, current output.....         | ≤ 0.01% of span/100 Ω             |
| Current limit.....                          | ≤ 28 mA                           |
| Sensor error detection, current output..... | Programmable 3.5...23 mA          |
| NAMUR NE 43 Upscale/Downscale.....          | 23 mA / 3.5 mA                    |
| *of span.....                               | = Of the presently selected range |

## Approvals

|                |                           |
|----------------|---------------------------|
| EMC.....       | EN 61326-1                |
| LVD.....       | EN 61010-1                |
| PELV/SELV..... | IEC 364-4-41 and EN 60742 |
| ATEX.....      | DEMKO 99ATEX124572        |
| GOST R.....    | Yes                       |
| GOST Ex.....   | Yes                       |