

## 2-wire programmable transmitter

### 5131A

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



#### Advanced features

- The 5131A transmitter can be configured with the software program PReset using a standard PC and the Loop Link communications unit.

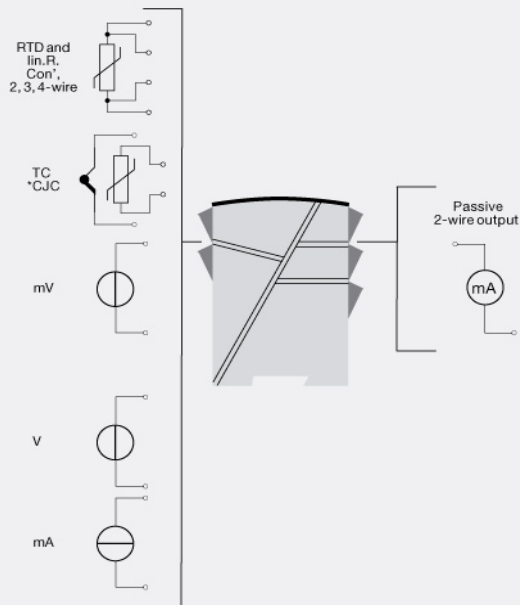
#### Application

- Independent channel jumper selectable inputs for current/voltage or temperature.
- Current input programmable in range 0...100 mA and voltage inputs in 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 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.

#### Applications



Order:

| Type  | Input                          | Channels                 |
|-------|--------------------------------|--------------------------|
| 5131A | RTD / TC / R / mA / V / mV : - | Single : A<br>Double : B |

\*Note! For TC inputs with internal CJC, remember to order CJC connectors type 5910 (ch. 1) and 5913 (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 46277                             |
| Wire size.....             | 1 x 2.5 mm <sup>2</sup> 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)   |
| Signal dynamics, input.....                                | 22 bit                     |
| Signal dynamics, output.....                               | 16 bit                     |
| Updating time.....                                         | 115 ms (temperature input) |
| Updating time.....                                         | 75 ms (mA / V / mV input)  |
| EMC immunity influence.....                                | < ±0.5% of span            |
| Extended EMC immunity: NAMUR NE21, A criterion, burst..... | < ±1% of span              |
| Effect of supply voltage change.....                       | < 0.005% of span / VDC     |

## 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)  |

## 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 |

## Approvals

|                      |                                             |
|----------------------|---------------------------------------------|
| ATEX 2014/34/EU..... | DEMKO 99ATEX124572, II (1) GD [IEEx ia] IIC |
|----------------------|---------------------------------------------|