

Programmable transmitter

5114B

- Input for RTD, TC, mV, linear resistance, mA, and V
- 3-port 3.75 kVAC galvanic isolation
- Current and voltage output
- Universal voltage supply
- 1- and 2-channel versions
- Loop supply > 17.1 V in Ex / I.S. zone 0



Advanced features

- The 5114 transmitter can be configured using the PReset software and the Loop Link communications unit.

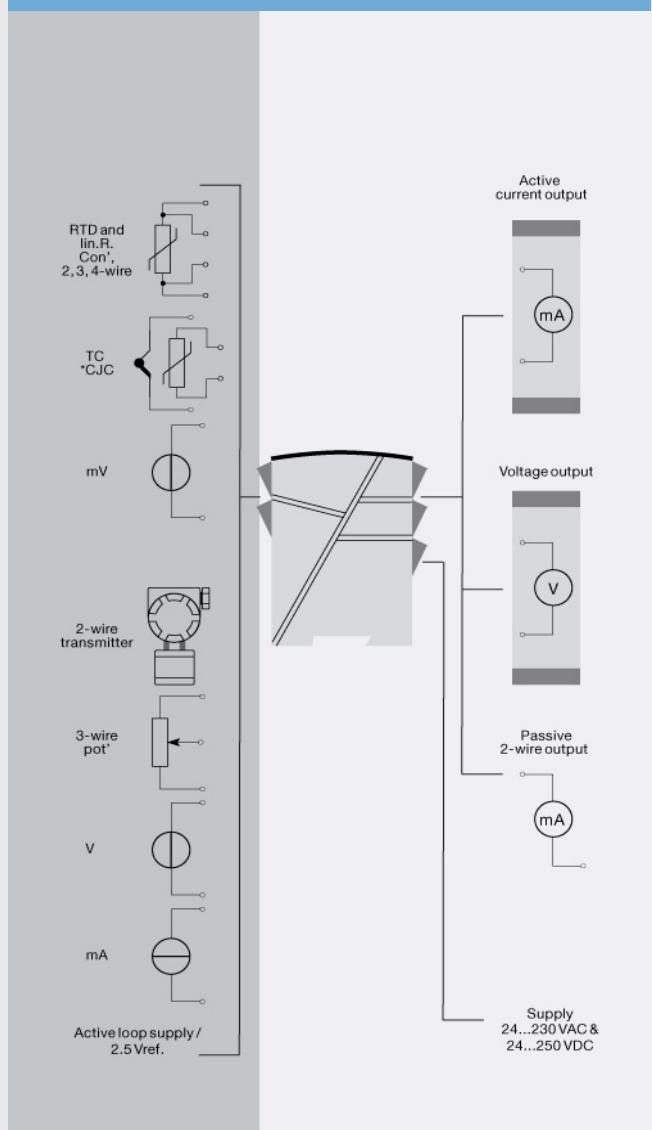
Application

- Jumper selectable inputs for current/voltage or temperature.
- Programmable current (0...100 mA) and voltage (0...250 VDC) inputs.
- Linearized, electronic temperature measurement.
- Conversion of linear resistance variation e.g. from solenoids and butterfly valves or linear movements with attached potentiometer.
- 17.1 VDC loop and 2.5 VDC potentiometer supplies.
- Automatic 4- / 3-wire or programmable 2-wire cable compensation.
- Configurable sensor error detection including NAMUR NE43.

Technical characteristics

- Active or Passive current output and selectable voltage output.
- Separation of circuits in PELV/SELV installations.
- I.S. barrier for temperature sensors, potentiometers, and current / voltage signals.
- I.S. barrier with I.S. power supply for 2-wire transmitters in zone 0, 1, 2, 20, 21 and 2.

Applications



Order:

| Type | Version | Input | Channels |
|-------|---------|--|------------------------|
| 5114B | ATEX Ex | RTD / TC / mV / R : 1 mA / V / mV : 2 Channel 1, RTD / TC / mV / R : 3 Channel 2, mA / V / mV | Single :A Double :B |

Note! For TC inputs with internal CJC, remember to order the CJC connectors type 5910 / 5910 Ex (ch. 1) and 5913 / 5913 Ex (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..... | 225 g |
| DIN rail type..... | DIN 46277 |
| Wire size..... | 1 x 2.5 mm ² stranded wire |
| Screw terminal torque..... | 0.5 Nm |
| Vibration..... | IEC 60068-2-6 |
| 2...13.2 Hz..... | ±1 mm |
| 13.2...100 Hz..... | ±0.7 g |

Common specifications

Supply

| | |
|--------------------------------|---|
| Supply voltage, universal..... | 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC |
| Fuse..... | 400 mA SB / 250 VAC |
| Max. required power..... | 2.1 W / 2.8 W (1 / 2 ch.) |

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 |

Auxiliary supplies

| | |
|--|-------------------------------------|
| 2-wire supply (pin 44...42 and 54...52)..... | 28...17.1 VDC / 0...20 mA |
| Programming..... | Loop Link |
| Signal / noise ratio..... | Min. 60 dB (0...100 kHz) |
| Accuracy..... | Better than 0.05% of selected range |
| Updating time..... | 115 ms (temperature input) |
| Updating time..... | 75 ms (mA / V / mV input) |
| Signal dynamics, input..... | 22 bit |
| Signal dynamics, output..... | 16 bit |
| Auxiliary voltages: Reference voltage..... | 2.5 VDC ±0.5% / 15 mA |
| 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 (max.)..... | 10 Ω |
| Sensor current..... | Nom. 0.2 mA |
| Effect of sensor cable resistance (3-/4-wire)..... | < 0.002 Ω / Ω |

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 = ∞, VDROPO < 6 V |

Voltage input

| | |
|------------------------------------|------------------------|
| Measurement range..... | 0...250 VDC |
| Measurement range..... | -150...+150 mV |
| 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..... | 0...20 mA |
| Min. signal range..... | 10 mA |
| Load (@ current output)..... | ≤ 600 Ω |
| Load stability..... | ≤ 0.01% of span / 100 Ω |
| Current limit..... | ≤ 28 mA |
| Sensor error indication..... | Programmable 0...23 mA |
| NAMUR NE43 Upscale/Downscale..... | 23 mA / 3.5 mA |

Passive 2-wire mA output

| | |
|---|-----------------------|
| Max. load resistance [Ω]..... | (Vsupply-3.5)/0.023 A |
| Max. external 2-wire supply..... | 29 VDC |
| Effect of external 2-wire supply voltage variation..... | < 0.005% of span / V |

Voltage output

| | |
|--|---|
| Signal range..... | 0...10 VDC |
| Min. signal range..... | 500 mV |
| Load (@ voltage output)..... | ≥ 500 kΩ |
| 2-wire 4...20 mA output: Signal range..... | 4...20 mA |
| Load stability, 4...20 mA output *of span..... | ≤ 0.01% of span / 100 Ω = of the presently selected range |

Observed authority requirements

| | |
|-----------|----------------|
| EMC..... | 2014/30/EU |
| LVD..... | 2014/35/EU |
| RoHS..... | 2011/65/EU |
| EAC..... | TR-CU 020/2011 |

Approvals

| | |
|----------------------------|--|
| ATEX 2014/34/EU..... | DEMKO 99ATEX124571, II (1) GD [EEx ia] IIC |
| EAC Ex TR-CU 012/2011..... | RU C-DK.GB08.V.00410 |
| DNV-GL Marine..... | Stand. f. Certific. No. 2.4 |