Programmable transmitter

5114A

- 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

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.

Applications

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### Environmental Conditions
- Operating temperature: -20°C to +60°C
- Calibration temperature: 20...25°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 mm² stranded wire
- Screw terminal torque: 0.5 Nm

### 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
- **Extended EMC immunity: NAMUR**
  - NE21, A criterion, burst: ≤ 5% 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**
  - 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
  - Nom. 10 Ω + PTC 10 Ω
- Input resistance: Non-supplied
  - RSHUNT = 0, VDROP < 6 V

### Voltage input
- Measurement range: 0...250 VDC
- Min. measurement range (span): 5 mV
- Input resistance: Nom. 10 MO (≤ 2.5 VDC)
- Input resistance: Nom. 5 MO (> 2.5 VDC)
- Input resistance: Nom. 10 MO (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: ≤ 25 mA
  - Sensor error indication: Programmable 0...23 mA
  - NAMUR NE43 Upscale/Downscale: 23 mA / 3.5 mA
- **Passive 2-wire mA output**
  - Signal range: 4...20 mA
  - Load stability: ≤ 0.01% of span / 100 Ω
  - Max. load resistance (Ω): (Vsupply-3.5)/0.025 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

### Observed authority requirements
- EMC: 2014/30/EU
- LVD: 2014/35/EU
- RoHS: 2011/65/EU
- EAC: TR-CU 020/2011

### Approvals
- DNV-GL Marine: Stand. f. Certific. No. 2.4