

## 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.

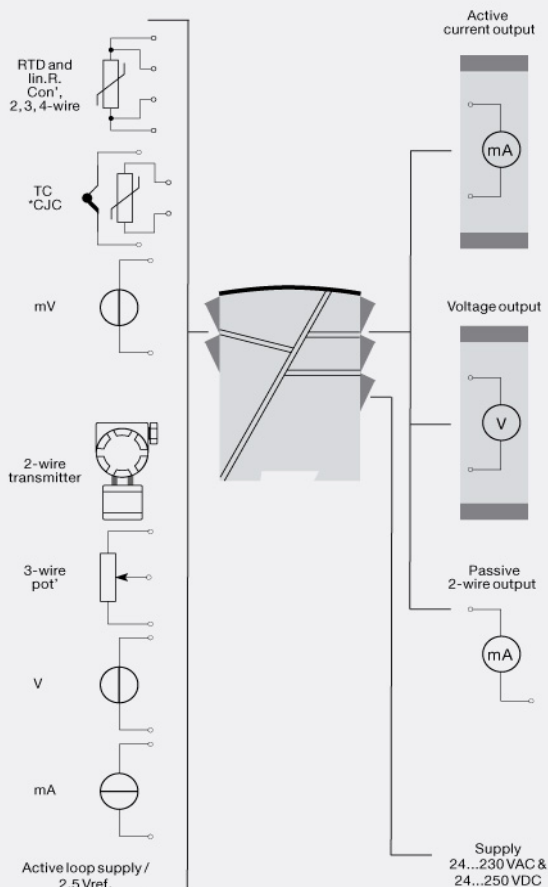
#### Application

- 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



**Order:**

| Type   | Version      | Input                          | Channels                 |
|--------|--------------|--------------------------------|--------------------------|
| 5114 A | Standard : A | RTD / TC / R / mA / V / mV : - | Single : A<br>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 EN 60715/35 mm                                    |
| Wire size.....             | 0.13...2.08 mm <sup>2</sup> AWG 26...14 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.)                    |
| Max. power dissipation.....    | 2.0 W                                        |

**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.....                     | 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 = ∞, VDROD < 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**

|                                                         |                         |
|---------------------------------------------------------|-------------------------|
| Signal range.....                                       | 4...20 mA               |
| Load stability.....                                     | ≤ 0.01% of span / 100 Ω |
| 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                          |
| of span.....                 | = 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**

|                 |            |
|-----------------|------------|
| DNV Marine..... | TAA0000101 |
|-----------------|------------|