

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.

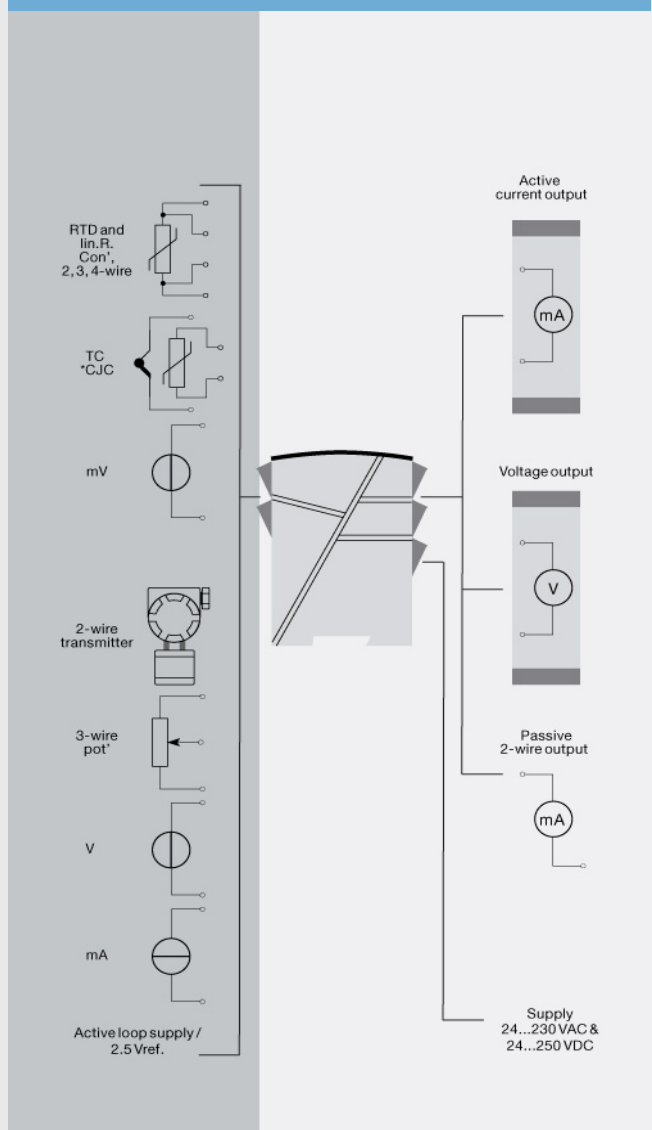
Application

- 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 NE 21, A criterion, burst.....	< ±1% of span

Input specifications

Common input specifications

Max. offset.....	50% of selected max. value
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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
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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 NE 43 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

Approvals

ATEX 2014/34/EU.....	DEMKO 99ATEX124571, II (1) GD [EEx ia] IIC
EAC.....	TR-CU 020/2011
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
DNV-GL Marine.....	Stand. f. Certific. No. 2.4