

Programmable transmitter

5114A

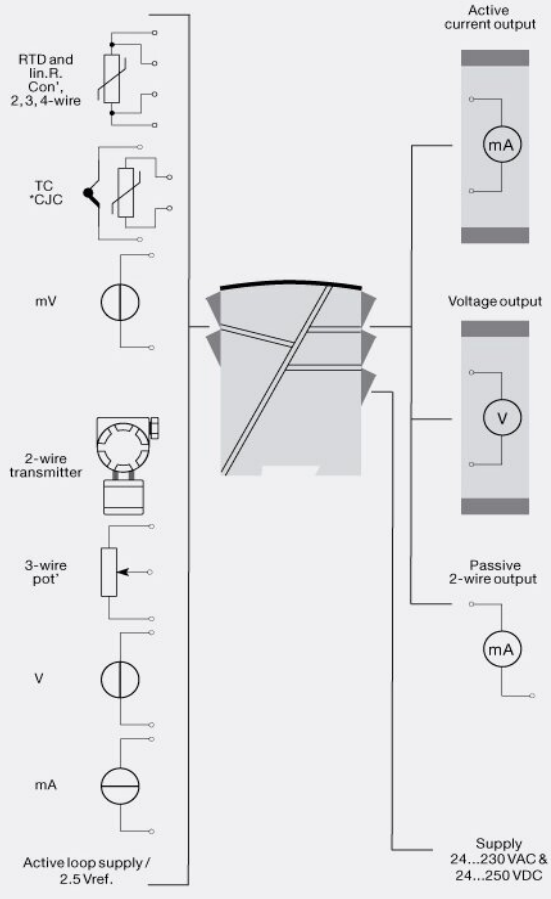
– Input for RTD, TC, mV, linear resistance, mA, and V
– 3-port 3.75 kVAC galvanic isolation
– Current and voltage output
– Universal voltage supply
– 1- and 2-channel versions
– Loop supply > 17.1 V

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



For pricing or any further information, please contact Omni Instruments Ltd.

Measurement and data acquisition solutions

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Order

Type	Channels	
5114A	Single	: A
	Double	: B

Example: 5114AB

NB! For TC inputs with internal CJC, remember to order the 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.	225 g
DIN rail type	DIN EN 60715/35 mm
Wire size	0.13...2.08 mm^2 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 (1)

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	PR 5909 Loop Link communications interface
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

Observed authority requirements

EMC	2014/30/EU
LVD	2014/35/EU
RoHS	2011/65/EU
EAC	TR-CU 020/2011
EAC LVD	TR-CU 004/2011

Approvals

DNV Marine	TAA0000101

Input specifications

Common input specifications

Max. offset	50% of selected max. value

RTD input

RTD type	Pt100…1000, Ni100...1000, 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 = ∞, VDROP < 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 (1)
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

5114A-110526

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