

Universal transmitter

4114



- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2-wire supply > 16 V
- FM-approved for installation in Div. 2
- Output for current and voltage
- Universal AC or DC supply



Advanced features

- Programmable by way of detachable display front (4501), process calibration, signal simulation, password protection, error diagnostics and help text available in several languages.

Application

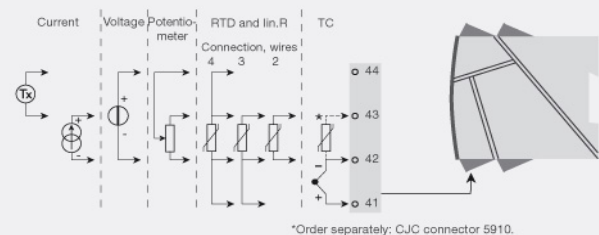
- Linearized, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analog output.
- Galvanic separation of analog signals and measurement of floating signals.
- The 4114 is designed according to strict safety requirements and is therefore suitable for application in SIL 2 installations.

Technical characteristics

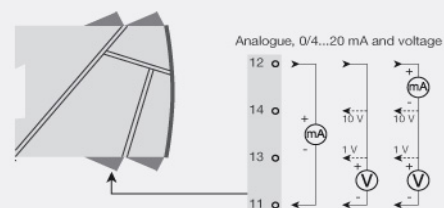
- When 4114 is used with the 4501 display / programming front, all operational parameters can be modified to suit any application. As the 4114 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP-switches.
- A green / red front LED indicates normal operation and malfunction.
- Continuous check of vital stored data for safety reasons.
- 3-port 2.3 kVAC galvanic isolation.

Connections

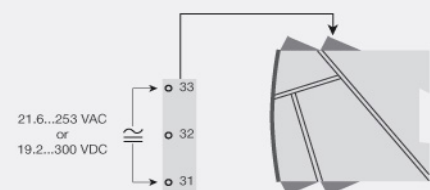
Input signals:



Output signals:



Supply:



Order:

Type
4114

Environmental Conditions

Specifications range.....	-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 104 mm
Dimensions (HxWxD) w/ 4501 / 4511.....	109 x 23.5 x 116 / 131 mm
Weight approx.....	145 g
Weight incl. 4501 / 4511 (approx.).....	160 g / 245 g
Wire size.....	1 x 2.5 mm ² stranded wire
Screw terminal torque.....	0.5 Nm
Vibration.....	IEC 60068-2-6 : 2007
Vibration: 2...13.2 Hz.....	±1 mm
Vibration: 13.2...100 Hz.....	±0.7 g

Common specifications

Supply voltage, universal.....	21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
Fuse.....	400 mA SB / 250 VAC
Max. power consumption.....	≤ 2.0 W
Isolation voltage, test / working.....	2.3 kVAC / 250 VAC
Communications interface.....	Communication enabler 4511 / Programming front 4501
Signal / noise ratio.....	Min. 60 dB (0...100 kHz)
Response time (0...90%, 100...10%): Temperature input.....	≤ 1 s
Response time (0...90%, 100...10%): mA / V input.....	≤ 400 ms
Auxiliary supplies: 2-wire supply (terminal 44...43).....	25...16 VDC / 0...20 mA
Accuracy.....	Better than 0.1% of selected range
EMC immunity influence.....	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Input specifications

RTD input.....	Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000 Ni50, Ni100, Ni120, Ni1000, Cu10, Cu20, Cu50, Cu100
Cable resistance per wire (max.), RTD.....	50 Ω
Sensor current, RTD.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire), RTD.....	< 0.002 Ω / Ω
Sensor error detection, RTD.....	Yes
Short circuit detection, RTD.....	< 15 Ω
Linear resistance input.....	0 Ω...10000 Ω
Potentiometer input.....	10 Ω...100 kΩ
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
Cold junction compensation (CJC) via ext. sensor in connector 5910.....	20...28°C ≤ ±1°C, -20...20°C / 28...70°C ≤ 2°C
CJC via internally mounted sensor.....	±(2.0°C + 0.4°C * Δt)
Δt =.....	Internal temperature-ambient temperature
Sensor error detection, TC.....	Yes

Sensor error current: When detecting / else.....	Nom. 2 μA / 0 μA
Current input: Measurement range.....	0...20 mA
Current input: Programmable measurement ranges.....	0...20 and 4...20 mA
Input resistance, current input.....	Nom. 20 Ω + PTC 50 Ω
Voltage input: Measurement range.....	0...12 VDC
Programmable measurement ranges, VDC.....	0/0.2...1, 0/1...5, 0/2...10 VDC
Input resistance, voltage input.....	Nom. 10 MΩ

Output specifications

Current output: Signal range.....	0...20 mA
Programmable current ranges.....	0...20 / 4...20 / 20...0 and 20...4 mA
Load (max.).....	20 mA/800 Ω/16 VDC
Load stability, current output.....	≤0.01% of span / 100 Ω
Sensor error indication, current output.....	0 / 3.5 / 23 mA / none
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA
Current limit.....	≤ 28 mA
Voltage output: signal range.....	0...10 VDC
Programmable voltage ranges.....	0/0.2...1; 0/1...5; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V
Load (min.).....	500 kΩ
*of span.....	= of the currently selected measurement range

Approvals

EMC.....	EN 61326-1
LVD 2006/95/EC.....	EN 61010-1
FM.....	3025177
UL.....	UL 508
EAC TR-CU 020/2011.....	EN 61326-1
DNV Marine.....	Stand. f. Certific. No. 2.4
SIL.....	Hardware assessed for use in SIL applications