

Isolated universal converter

3114

- Input for RTD, TC, Ohm, potentiometer, mA and V
- Slimline housing of 6 mm
- 2-wire supply >15 V
- Output for current and voltage
- Can be supplied separately or installed on power rail, PR 9400



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 device can be mounted in Safe area or in Zone 2 and Cl. 1 Div 2. area.

Advanced features

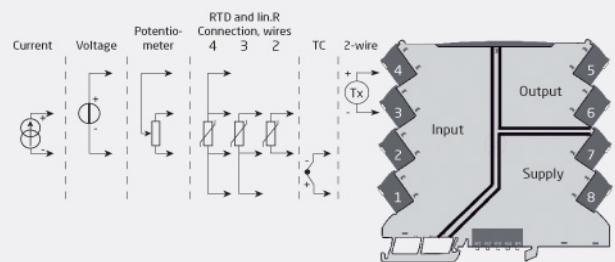
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application.

Technical characteristics

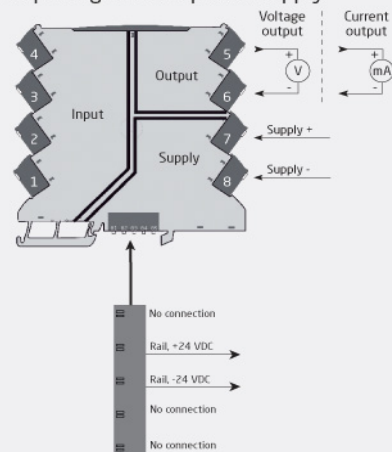
- A green / red front LED indicates normal operation and malfunction.
- 3-port 2.5 kVAC galvanic isolation.

Connections

Input signals:



Output signals and power supply:



*Safe Area or
Zone 2 & Cl. 1, Div. 2, gr. A-D*

Order:

Type
3114

Environmental Conditions

Specifications range.....	-25°C to +70°C
Storage temperature.....	-40°C to +85°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP20
Installation in.....	Pollution degree 2 & measurement / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD).....	113 x 6.1 x 115 mm
Weight approx.....	70 g
DIN rail type.....	DIN EN 60715/35 mm
Wire size.....	0.13 x 2.5 mm ² / AWG 26...12 stranded wire
Screw terminal torque.....	0.5 Nm
Vibration: 2...25 Hz.....	±1.6 mm
Vibration: 25...100 Hz.....	±4 g

Common specifications

Supply voltage.....	16.8...31.2 VDC
Fuse.....	400 mA SB / 250 VAC
Max. power consumption.....	1.2 W
Internal consumption.....	0.4 W (typ.) / 0.65 W (max.)
Isolation voltage, test.....	2.5 kVAC
Isolation voltage, working.....	300 VAC (reinforced) / 250 VAC (Zone 2, Div. 2)
Signal / noise ratio.....	> 60 dB
Response time (0...90%, 100...10%): Temperature input.....	≤ 1 s
Response time (0...90%, 100...10%): mA / V input.....	≤ 400 ms
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
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
TC input: Thermocouple type.....	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
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
2-wire transmitter supply.....	> 15 V / 20 mA

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 (span)
Programmable current ranges.....	0...20 / 4...20 / 20...0 and 20...4 mA
Load (max.).....	20 mA/600 Ω/15 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.).....	> 10 kΩ
*of span.....	= of the currently selected measurement range

Approvals

EMC.....	EN 61326-1
LVD 2006/95/EC.....	EN 61010-1
ATEX 2004/108/EC.....	KEMA 10ATEX0147 X, II 3 G Ex nA IIC T4 Gc
IECEx.....	KEM 10.0068X
FM.....	3041043-C
DNV Marine.....	Stand. f. Certific. No. 2.4
GL.....	V1-7-2
UL.....	UL 61010-1
EAC TR-CU 020/2011.....	EN 61326-1
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
CCOE.....	P337347/1