

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

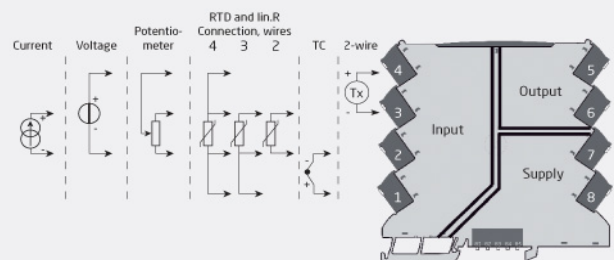
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application. As the 3114 is designed with electronics hardware switches, it is not necessary to open the device for setting of DIP-switches.

Technical characteristics

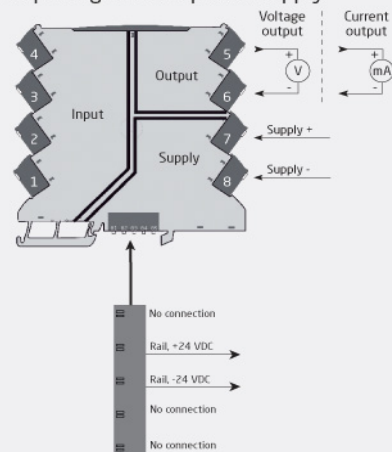
- A green / red front LED indicates normal operation and malfunction.
- 3-port 2.5 kVAC galvanic isolation.

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

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
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
RTD input.....	Linear resistance
RTD input.....	Potentiometer
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.....	EN 61010-1
ATEX.....	KEMA 10ATEX0147 X
IECEX.....	KEM 10.0068X
FM.....	3041043-C
GOST R.....	Yes
DNV Marine.....	Stand. f. Certific. No. 2.4
GL.....	V1-7-2
UL.....	UL 61010-1