

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

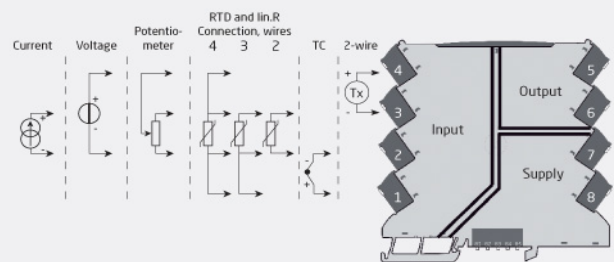
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application.

Technical characteristics

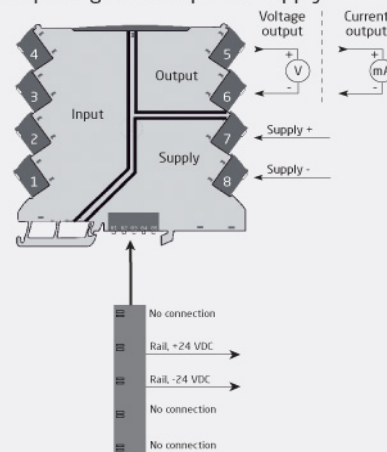
- A green / red front LED indicates normal operation and malfunction.
- 3-port 2.5 kVAC galvanic isolation.

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

Supply voltage.....	16.8...31.2 VDC
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Isolation voltage

Isolation voltage, test / working.....	2.5 kVAC / 300 VAC (reinforced)
Zone 2 / Div. 2.....	250 VAC

Response time

Temperature input (0...90%, 100...10%).....	≤ 1 s
mA / V input (0...90%, 100...10%).....	≤ 400 ms
Fuse.....	400 mA SB / 250 VAC
Max. required power.....	1.2 W
Internal consumption.....	0.4 W (typ.) / 0.65 W (max.)
Signal / noise ratio.....	> 60 dB
Programming.....	ConfigMate 4590
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

RTD type.....	Pt10, Pt20, Pt50, Pt100, Pt200, Pt250, Pt300, Pt400, Pt500, Pt1000, Ni50, Ni100, Ni120, Ni1000
Cable resistance per wire (max.).....	50 Ω
Sensor current.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire).....	< 0.002 Ω / Ω
Sensor error detection.....	Yes
Short circuit detection.....	< 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.....	Yes
Sensor error current: When detecting / else.....	Nom. 2 μA / 0 μA

Current input

Measurement range.....	0...23 mA
Programmable measurement ranges.....	0...20 and 4...20 mA
Input resistance.....	Nom. 20 Ω + PTC 50 Ω

Voltage input

Measurement range.....	0...12 VDC
Programmable measurement ranges.....	0/0.2...1, 0/1...5, 0/2...10 VDC
Input resistance.....	Nom. 10 MΩ

2-wire transmitter supply..... > 15 V / 20 mA

Output specifications

Current output

Signal range.....	0...23 mA
Programmable signal ranges.....	0...20 / 4...20 / 20...0 and 20...4 mA
Load (@ current output).....	≤ 600 Ω
Load stability.....	≤ 0.01% of span / 100 Ω
Sensor error indication.....	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 signal ranges.....	0/0.2...1; 0/1...5; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V
Load (@ voltage output).....	≥ 10 kΩ

*of span..... = of the currently selected measurement range

Observed authority requirements

EMC.....	2014/30/EU
LVD.....	2014/35/EU
RoHS.....	2011/65/EU

Approvals

ATEX 2014/34/EU.....	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
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410
CCOE.....	P337347/1