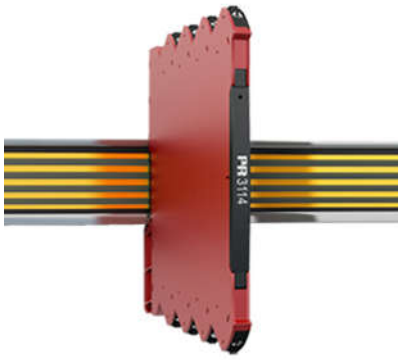
PERFORMANCE MADE SMARTER



Isolated universal converter

3114

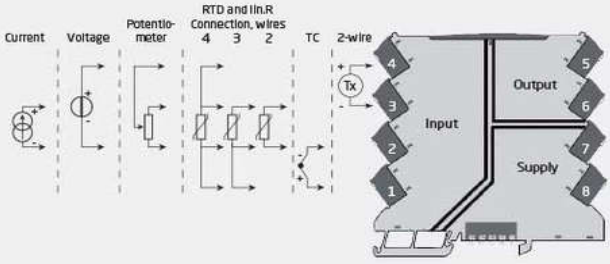
– Input for RTD, TC, Ohm, potentiometer, mA and V
– 2-wire supply >15 V
– I.S. approvals: FM Div. 2, ATEX Zone 2, IECEx Zone 2
– Output for current and voltage
– Slimline housing of 6 mm

Advanced features
- Linearised, 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.

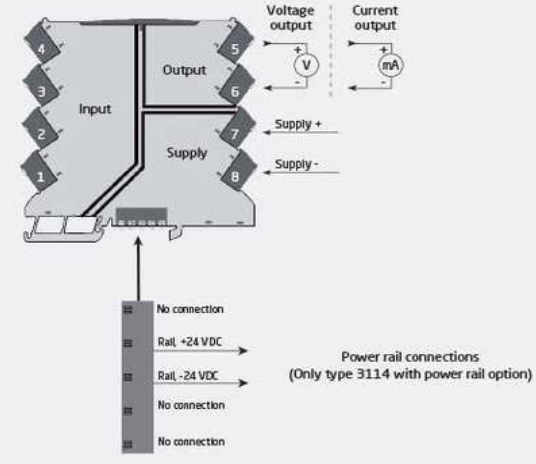
Applications
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application. As the 3114 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP-switches.
- A green front LED indicates normal operation and malfunction.
- Continuous check of vital stored data for safety reasons.
- 3-port 2.5 kVAC galvanic isolation.

Applications

Input signals:



Output signals and power supply:



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Order

Type	Version	
3114	With power rail connector / terminals	: -
	Supplied via terminals	: -N

Example: 3114

Environmental Conditions

Operating temperature..... -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 & meas. / 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...2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque..... 0.5 Nm
Vibration..... IEC 60068-2-6
2...25 Hz..... ±1.6 mm
25...100 Hz..... ±4 g

Common specifications

Supply

Supply voltage..... 16.8...31.2 VDC
Fuse..... 400 mA SB / 250 VAC
Max. required power..... 1.20 W
Max. power dissipation..... 0.65 W

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

Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Signal dynamics, input..... 24 bit
Signal dynamics, output..... 16 bit
Programming..... ConfigMate 4590
Accuracy..... Better than 0.1% of sel. range
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst..... < ±1% of span

Input specifications

RTD input

RTD type..... Pt10/20/50/100/200/250/300/Pt400/500/1000; Ni50/100/120/1000
Cable resistance per wire..... 50 Ω (max.)
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

Linear resistance input

Linear resistance min....max..... 0 Ω...10000 Ω

Potentiometer input

Potentiometer min....max..... 10 Ω...100 kΩ

TC input

Thermocouple type..... B, E, J, K, L, N, R, S, T, U, W3, W5, LR
CJC via int. mounted sensor..... ±(2.0°C + 0.4°C * Δt)
Δt =..... Internal temp.-ambient temp.
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...0/20...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 NE43 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

I.S. / Ex marking

ATEX..... II 3 G Ex nA IIC T4 Gc
IECEx..... Ex nA IIC T4 Gc
FM, US..... Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, AEx nA IIC T4
FM, CA..... Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, Ex nA IIC T4

Observed authority requirements

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

Approvals

ATEX 2014/34/EU..... KEMA 10ATEX0147 X
IECEx..... KEM 10.0068X
FM..... FM17US0004X / FM17CA0003X
DNV-GL Marine..... Stand. f. Certific. No. 2.4
UL..... UL 61010-1
EAC Ex TR-CU 012/2011..... RU C-DK.GB08.V.00410