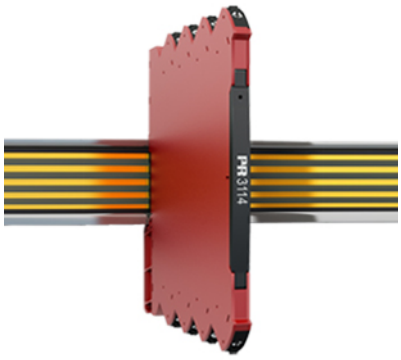


Isolated universal converter

3114

– Input: RTD, TC, Ohm, potentiometer, mA and V
– Output: Current and voltage
– Loop supply > 15 V
– Power supply 16.8 VDC…31.2 VDC
– Slimline 6.1 mm housing

Functional highlights
- Conversion of linear resistance variation to a standard analog current / voltage signal, e.g. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Galvanic separation of analog current and voltage signals.
- Linearised, electronic temperature measurement with RTD or TC sensor.
- High 3-port isolation provides surge suppression that protects the control system from transients and noise and eliminates ground loops.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analog output.
- All terminals are over-voltage protected, polarity protected and short-circuit protected.
- The device can be mounted in Safe area or in Zone 2 / Division 2 areas and is approved for marine applications.

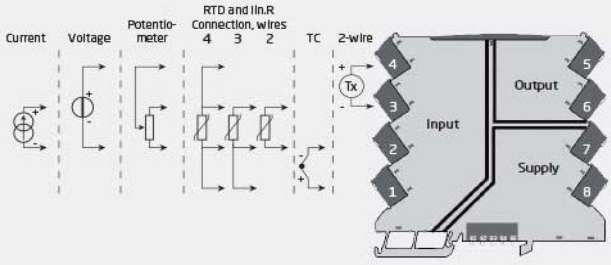
Technical highlights
- Flexible 24 VDC (±30%) supply via power rail or connectors.
- Excellent conversion accuracy in all available ranges, better than 0.1% of span.
- Continuous check of vital stored data for safety reasons.
- Excellent signal / noise ratio > 60 dB.
- High galvanic isolation of 2.5 kVAC.
- A green front LED indicates normal operation, status of the input sensor and malfunction.
- Wide ambient temperature range: -25...+70°C.

Programming
- Configuration, monitoring, and diagnostics using PR 4500 detachable communication interfaces via the PR 4590 ConfigMate. As the device is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP switches.
- All programming can be password protected.
- Scrolling help text in 7 languages.

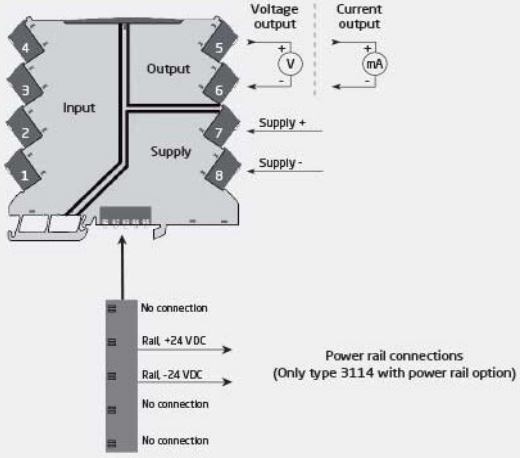
Mounting / installation
- The narrow 6.1 mm housing allows up to 163 units per meter.
- Units can be mounted side by side, horizontally and vertically, without air gap on a standard DIN rail, even at 70°C ambient temperature.
- Units can be supplied separately or installed on PR 9400 power rail.

Applications

Input signals:



Output signals and power supply:



Measurement and data acquisition solutions

Contact Details:
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Website: www.omniinstruments.co.uk

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	≤ 1.2 W (1)
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; Pt300/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)
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
2-wire transmitter supply	> 15 V / 20 mA

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 (1)

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 (1)
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 presently selected range

I.S. / Ex marking

ATEX	II 3 G Ex ec IIC T4 Gc
IECEx	Ex ec 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

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Observed authority requirements

EMC	2014/30/EU & UK SI 2016/1091
LVD	2014/35/EU & UK SI 2016/1101
ATEX	2014/34/EU & UK SI 2016/1107
RoHS	2011/65/EU & UK SI 2012/3032
EAC	TR-CU 020/2011
EAC Ex	TR-CU 012/2011

Approvals

ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
UKEX	DEKRA 21UKEX0055X
c FM us	FM17US0004X / FM17CA0003X
c UL us, UL 61010-1	E314307
CCC	2020322310003554
EAC Ex	EAEU KZ 7500361.01.01.08756
DNV Marine	TAA00001RW

For pricing or any further information, please contact Omni Instruments Ltd.

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