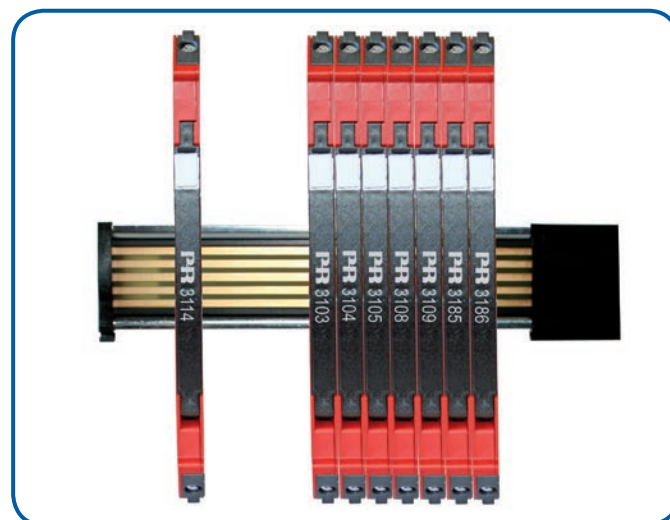


# ISOLATED UNIVERSAL CONVERTER



- 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

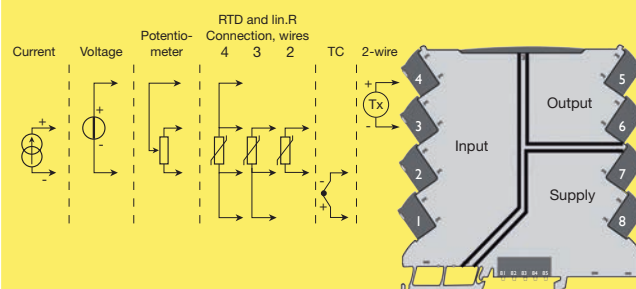
- Linearised, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analogue current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analogue output.
- Galvanic separation of analogue 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

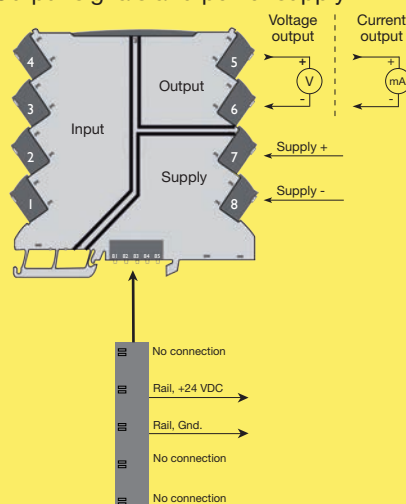
- When 3114 is used in combination with the 4501 display / programming front and ConfigMate 4590, all operational parameters can be modified to suit any application. As the 3114 is designed with electronics hardware switches, it is not necessary to open the device for setting of DIP-switches.
- **Technical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

# PR



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**Order codes:**

**3114 = Isolated Universal Converter**  
**4501 = Display / Programming Front**  
**4590 = ConfigMate**

**3405 = Power Connector Unit (for power rail)**  
**9400 = Power Rail**  
**9404 = Module Stop**

**PR 4590 ConfigMate and PR 4501 Display / programming front**

**Application**



- The 4590 is a handheld device that can operate as an adapter between the 4501 programming front and 3114. This allows for configuration and monitoring of process parameters of the installed devices.
- Can be moved from one 3114 device to another and download the configuration of the first device to subsequent devices.

**Technical characteristics**

- Programming access can be blocked by assigning a password. The password is saved in the converter in order to ensure a high degree of protection against unauthorised modifications to the configuration.

**Mounting / installation**

- Click 4501 onto the 4590 and plug it into the 3114.

**Electrical specifications:**

Specifications range..... -25°C to +70°C  
 Storage temperature ..... -40°C to +85°C  
 Installation in pollution degree 2 and measurement / overvoltage category II.

**Common specifications:**

Supply voltage, DC ..... 16.8...31.2 VDC  
 Internal consumption, typ./max. .... 0.4 W / 0.65 W  
 Power consumption (max.)..... 1.2 W  
 Fuse..... 400 mA SB / 250 VAC  
 Isolation voltage, test ..... 2.5 kVAC  
 Working isolation voltage ..... 300 VAC / 250 VAC (Ex)  
 Signal / noise ratio..... > 60 dB  
 Response time, (0...90%, 100...10%)  
   Temperature input ..... ≤ 1 s  
   mA / V input ..... ≤ 400 ms  
 Calibration temperature..... 20...28°C  
 Accuracy, the greater of the general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	≤ ±0.1% of span	≤ ±0.01% of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
mA	≤ ±16 µA	≤ ±1.6 µA / °C
0...1 V & 0.2...1 V	≤ ±0.8 mV	≤ ±0.08 mV / °C
0...5 V, 1...5 V, 0...10 V & 2...10 V	≤ ±8 mV	≤ ±0.8 mV / °C
Pt100, Pt200, Pt 1000	≤ ±0.2°C	≤ ±0.02°C / °C
Pt500, Ni100, Ni120, Ni 1000	≤ ±0.3°C	≤ ±0.03°C / °C
Pt50, Pt400, Ni50	≤ ±0.4°C	≤ ±0.04°C / °C
Pt250, Pt300	≤ ±0.6°C	≤ ±0.06°C / °C
Pt20	≤ ±0.8°C	≤ ±0.08°C / °C
Pt10	≤ ±1.4°C	≤ ±0.14°C / °C
TC type: E, J, K, L, N, T, U	≤ ±1°C	≤ ±0.1°C / °C
TC type: R, S, W3, W5, LR	≤ ±2°C	≤ ±0.2°C / °C
TC type: B 160...400°C	≤ ±4.5°C	≤ ±0.45°C / °C
TC type: B 400...1820°C	≤ ±2°C	≤ ±0.2°C / °C

EMC immunity influence .....	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst.....	< ±1% of span

Wire size (max.) ..... 0.13 x 2.5 mm<sup>2</sup> / AWG 26...12 stranded wire  
 Screw terminal torque ..... 0.5 Nm  
 Relative humidity ..... < 95% RH (non-cond.)  
 Dimensions (H x W x D)..... 113 x 6.1 x 115 mm  
 Protection degree ..... IP20  
 Weight ..... 70 g  
 DIN rail type..... DIN EN 60715 - 35mm

**RTD, linear resistance and potentiometer input:**

Input type	Min. value	Max. value	Standard
Pt100	-200°C	+850°C	IEC60751
Ni100	-60°C	+250°C	DIN 43760
Lin. R	0 Ω	10000 Ω	-
Potentiometer	10 Ω	100 kΩ	-

Cable resistance per wire, RTD (max.) 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

**Cold junction compensation (CJC)**

via internal CJC sensor ..... ±(2.0°C + 0.4°C \* Δt)  
 Δt = internal temperature - ambient temperature

Sensor error detection, all TC types.. Yes

**Sensor error current:**

when detecting ..... Nom. 2 µA  
 else..... 0 µA

**Current input:**

Measurement range ..... 0...20 mA  
 Programmable measurement ranges . 0...20 and 4...20 mA  
 Input resistance ..... Nom. 20 Ω + PTC 50 Ω  
 2-wire transmitter supply..... > 15 V / 20mA

**Voltage input:**

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

**Current output:**

Signal range (span)..... 0...20 mA  
 Programmable signal ranges..... 0/4...20 and 20...4/0 mA  
 Load (max.)..... 20 mA / 600 Ω / 15 VDC  
 Load stability ..... ≤ 0.01% of span / 100 Ω  
 Sensor error detection..... 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 (min.)..... >10 kΩ

**Approvals:**

EMC 2004/108/EC..... EN 61326-1  
 LVD 2006/95/EC ..... EN 61010-1  
 UL, Standard for Safety ..... UL 61010-1  
 Safe Isolation ..... EN 61140  
 GOST R

**Marine:**

Det Norske Veritas, Ships & Offshore . Stand. f. Certific. No. 2.4  
 Germanischer Lloyd..... VI-7-2

**Ex:**

ATEX 94/9/EC ..... KEMA 10ATEX0147 X  
 IECEx..... KEM 10.0068 X  
 c FM us ..... 3041043-C

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