Product manual
2914
2-wire room temperature transmitter

EAC UK CA CE

No. 2914V102-UK
From serial no.: 219032001

PR
electronics

6 Product Pillars
to meet your every need

Individually outstanding, unrivalled in combination

With our innovative, patented technologies, we make signal conditioning smarter and simpler. Our portfolio is composed of six product areas, where we offer a wide range of analog and digital devices covering over a thousand applications in industrial and factory automation. All our products comply with or surpass the highest industry standards, ensuring reliability in even the harshest of environments and have a 5-year warranty for greater peace of mind.

Temperature

Our range of temperature transmitters and sensors provides the highest level of signal integrity from the measurement point to your control system. You can convert industrial process temperature signals to analog, bus or digital communications using a highly reliable point-to-point solution with a fast response time, automatic self-calibration, sensor error detection, low drift, and top EMC performance in any environment.

I.S. Interface

We deliver the safest signals by validating our products against the toughest safety standards. Through our commitment to innovation, we have made pioneering achievements in developing I.S. interfaces with SIL 2 Full Assessment that are both efficient and cost-effective. Our comprehensive range of analog and digital intrinsically safe isolation barriers offers multifunctional inputs and outputs, making PR an easy-to-implement site standard. Our backplanes further simplify large installations and provide seamless integration to standard DCS systems.

Communication

We provide inexpensive, easy-to-use, future-ready communication interfaces that can access your PR installed base of products. All the interfaces are detachable, have a built-in display for readout of process values and diagnostics, and can be configured via push-buttons. Product specific functionality includes communication via Modbus and Bluetooth and remote access using our PR Process Supervisor (PPS) application, available for iOS and Android.

Multifunction

Our unique range of single devices covering multiple applications is easily deployable as your site standard. Having one variant that applies to a broad range of applications can reduce your installation time and training, and greatly simplify spare parts management at your facilities. Our devices are designed for long-term signal accuracy, low power consumption, immunity to electrical noise and simple programming.

Isolation

Our compact, fast, high-quality 6 mm isolators are based on microprocessor technology to provide exceptional performance and EMC-immunity for dedicated applications at a very low total cost of ownership. They can be stacked both vertically and horizontally with no air gap separation between units required.

Display

Our display range is characterized by its flexibility and stability. The devices meet nearly every demand for display readout of process signals and have universal input and power supply capabilities. They provide a real-time measurement of your process value no matter the industry and are engineered to provide a user-friendly and reliable relay of information, even in demanding environments.

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- 4…20 mA output in 2-wire connection

- Easy mounting

- Measurement range 0…70°C

- Supply 8…35 VDC

Application
- Electronic temperature measurement in for instance control rooms, offices, heating plants, factories, living rooms, and similar dry rooms.
- Suitable as a transmitter for controllers, trip amplifiers, displays, or superior SCADA systems.

Technical characteristics
- The device is built around a microprocessor core with an efficient program operation. The basic calibration data and the present set-up are stored in an EEPROM thereby ensuring that the data is not lost or changed at power off.
- A precision Pt100 sensor with a small mass is mounted on the transmitter input thereby achieving a fast response time.
- The room temperature transmitter is protected against polarity reversal.
- The front of the cabinet is made of white ABS plastic, the bottom is made of black PBT plastic.
- The bottom of the cabinet can be attached to a wall by two screws and the front is then clipped on to the bottom plate.
- Visible cable connection through a 10 mm cutout in the front of the cabinet. Covered cable connection through a 16 mm cutout in the bottom plate of the cabinet.

Input
- The input is mounted at the factory.

Output
- The 2-wire output signal of 4…20 mA is proportional and linear to the temperature value that influences the built-in sensor. The output signal represents the temperature range (span) to which the transmitter has been set up. A span of 0…50°C means that the output signal is 4 mA at 0°C and 20 mA at 50°C. The temperature range must be specified when ordering.
- A reversed output signal of 20…4 mA can be ordered.
- A number of different sensor error detection methods are offered, for instance max. ≥ 23 mA.

Block diagram
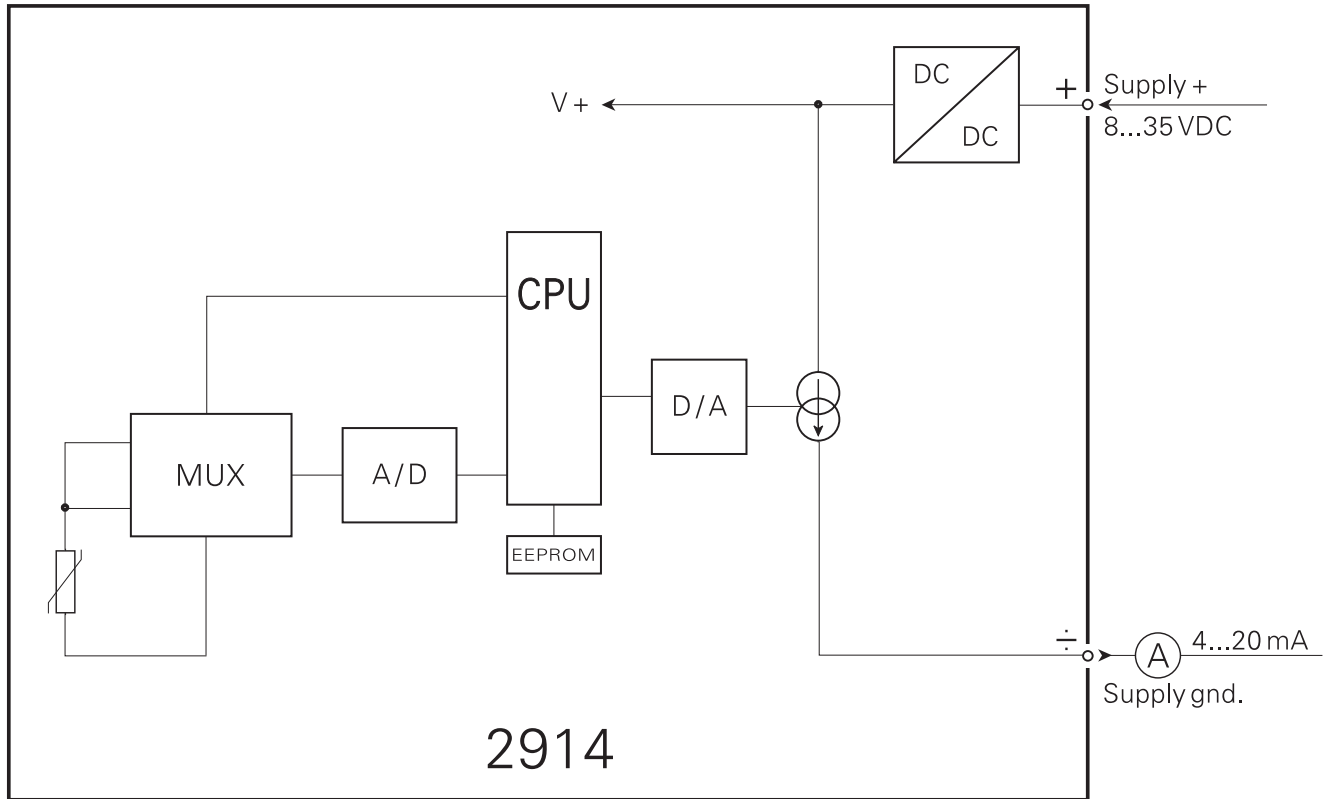
2914

Order

Type	Measurement range		Output		Sensor error value	
2914	0...50°C	: A	Special	: 0	To max., ≥ 23 mA	: A
	0...70°C	: B	4...20 mA	: 2	To min., ≤ 3.8 mA	: B
	Special	: X	20...4 mA	: 9	Special	: X

Electrical specifications

Environmental conditions
Operating temperature . . . . 0°C to +70°C
Calibration temperature. . . . . 20...28°C
Relative humidity . . . . < 95% RH (non-cond.)
Protection degree IP30

Mechanical specifications
Dimensions (HxWxD) . . . . 70 x 121 x 25 mm
Weight approx. . . . . 95 g
Max. wire size. . . . . $1 \times 1.5 \text{ mm}^2$

Common electrical specifications
Supply voltage . . . . 8.0...35 VDC
Internal consumption . . . . 25 mW...0.8 W
Voltage drop . . . . 8 VDC
Warm-up time. . . . . 5 min.
Signal / noise ratio. . . . . Min. 60 dB
Response time . . . . 10 s (@ 0,5 m/s)
Signal dynamics, input . . . . 17 bit
Signal dynamics, output . . . . 16 bit
Temperature coefficient. . . . . $< \pm 0.01°C/°C_{amb.}$
Linearity error . . . . $< \pm 0.1\%$ of span
Effect of supply voltage change. . . . . $\leq \pm 0.005\%$ of span / VDC
EMC immunity influence . . . . $< \pm 0.5\%$ of span

Input
Measurement range . . . . 0...70°C
Min. measurement range (span). . . . . 25°C
Max. offset . . . . 50% of max.°C
Sensor current . . . . > 0.2 mA, < 0.4 mA
Basic accuracy . . . . $< \pm 0.3°C$

Output
Signal range. . . . . 4...20 mA
Min. signal range . . . . 16 mA
Max. offset . . . . 20% of max. mA
Updating time . . . . 135 ms
Load resistance. . . . . $\leq (V_{supply} - 8) / 0.023 \ [\Omega]$
Load stability . . . . $< \pm 0.01\%$ of span/100 Ω

Sensor error detection
Please order exact value . . . . 3.5...23 mA
NAMUR NE43 Upscale . . . . 23 mA
NAMUR NE43 Downscale. . . . . 3.5 mA
To max. . . . . ≥ 23 mA
To min.. . . . . ≤ 3.8 mA
No function . . . . Not defined

Observed authority requirements
EMC. . . . . 2014/30/EU & UK SI 2016/1091
RoHS . . . . 2011/65/EU & UK SI 2012/3032
EAC . . . . TR-CU 020/2011

Of span = of the presently selected range

Mechanical specifications

All dimensions in mm
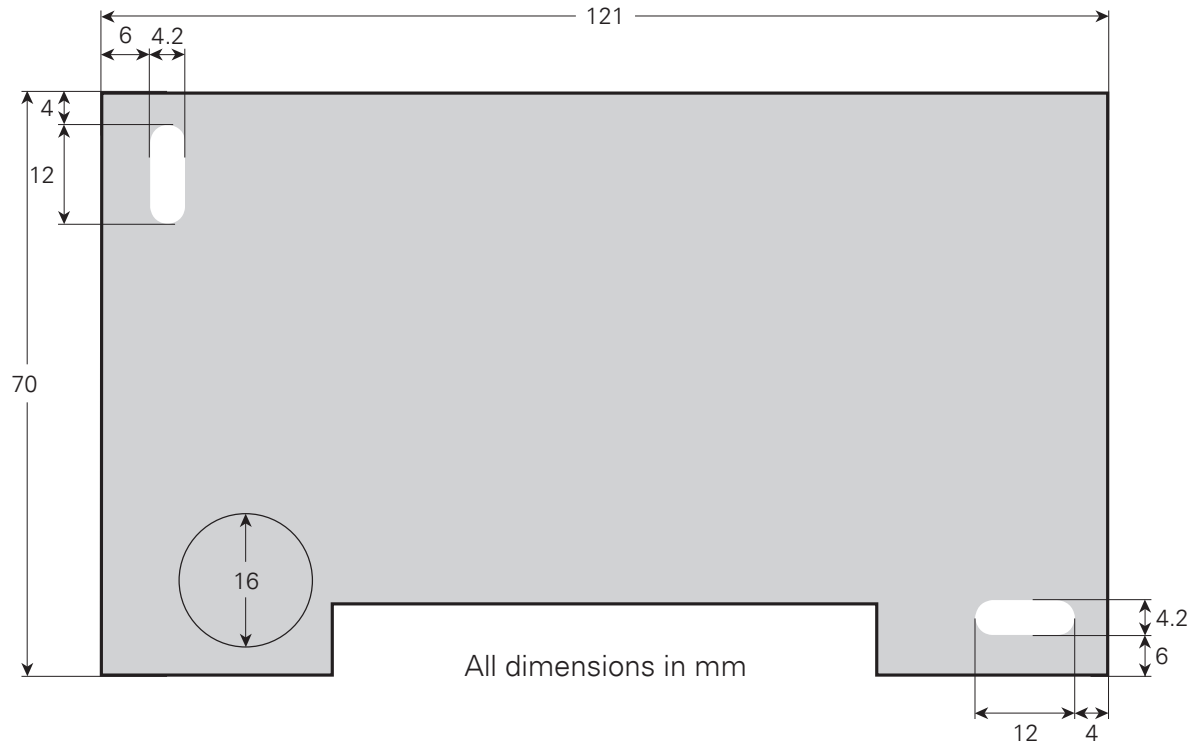
Document history

The following list provides notes concerning revisions of this document.

Rev. ID	Date	Notes
102	2311	UKCA added.

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PR electronics is the leading technology company specialized in making industrial process control safer, more reliable and more efficient. Since 1974, we have been dedicated to perfecting our core competence of innovating high precision technology with low power consumption. This dedication continues to set new standards for products communicating, monitoring and connecting our customers' process measurement points to their process control systems.

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