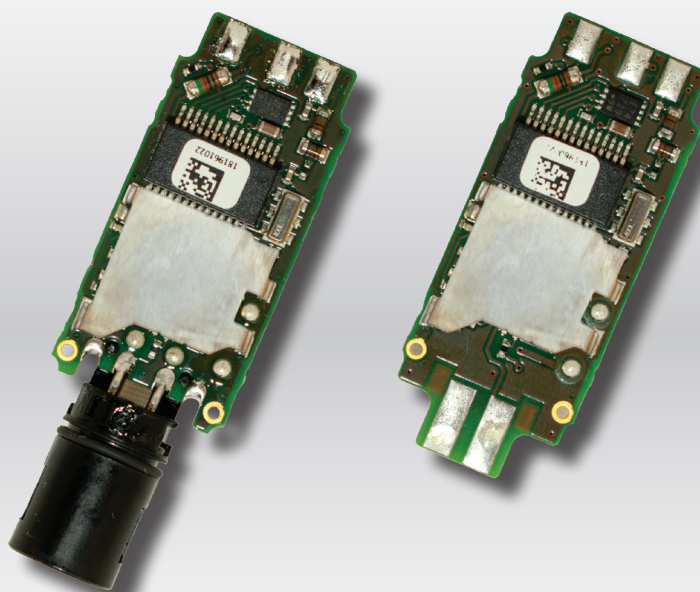


PERFORMANCE
MADE
SMARTER

Product manual

5802

Compact RTD temperature transmitter



TEMPERATURE | I.S. INTERFACES | COMMUNICATION INTERFACES | MULTIFUNCTIONAL | ISOLATION | DISPLAY

No. 5802V100-UK
From serial no.: 191043001

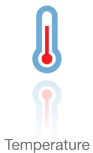
PR
electronics

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 Portable Plant 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.

Compact RTD temperature transmitter 5802

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Compact RTD temperature transmitter 5802

- RTD or Ohm input
- Accuracy: Better than 0.1% of selected range
- 2- / 3-wire RTD connection
- Programmable sensor error value
- Output 4...20 mA, with or without M12 connector

Application

- Linearized temperature measurement with Pt100...Pt1000, or Ni100...Ni1000 sensor.
- Conversion of linear resistance variation to a standard analog current signal.

Technical characteristics

- Within a few seconds the user can program PR5802 to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 3-wire connection.

Mounting / installation

- For tube mounting, e.g. M18 barrel housing or customer specific housing.
- The unit is tested with an M12 connector, mounted in a steel housing and molded with Silgel 612 silicone molding compound. This is PR electronics' recommended method to comply with specifications and EMC data.

Order

Type	M12 connector	Output pins	PCB only
5802A1A2	No*	1-2	Yes
5802A2A2	Yes	1-2	Yes
5802A1A3	No*	1-3	Yes
5802A2A3	Yes	1-3	Yes

* Prepared for customer-mounted M12 connector.

NB: Please note that minimum order quantity per type is 40 pcs. and that only order quantities divisible by 40 are accepted.

Accessories

5909	= Loop Link USB interface and PReset Software
8509	= M12 interface cable for 5909 Loop Link (only for 5802A2Ax)

Electrical specifications

Environmental conditions:

Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C
Humidity.	< 95% RH (non-cond.)

Mechanical specifications:

Dimensions, PCB only (H x W x D).	5.0 x 15.50 x 38.0 mm
Dimensions, incl. M12 connector (H x W x D)	9.5 x 15.50 x 47.70 mm
Weight approx.	2.65 g 5802A1xx
Weight approx.	4.05 g 5802A2xx

Common specifications:

Supply voltage, DC.	8.0...35 VDC
Internal power dissipation	25 mW...0.8 W
Voltage drop	8.0 VDC
Warm-up time.	5 min.
Programming	Loop Link
Signal / noise ratio.	Min. 60 dB
Response time (programmable)	0.33...60 s
Signal dynamics, input	19 bit
Signal dynamics, output	16 bit
Effect of supply voltage variation.	$\leq 0,005\%$ of span / VDC

Accuracy, the greater of general and basic values:

General values		
Input type	Absolute accuracy	Temperature coefficient
All	$\leq \pm 0.1\%$ of span	$\leq \pm 0.01\%$ of span / °C

Basic values		
Input type	Basic accuracy	Temperature coefficient
RTD	$\leq \pm 0.3^\circ\text{C}$	$\leq \pm 0.01^\circ\text{C}/^\circ\text{C}$
Lin. R	$\leq \pm 0.2 \Omega$	$\leq \pm 20 \text{ m}\Omega / ^\circ\text{C}$

EMC - immunity influence.	< $\pm 0.5\%$ of span
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The unit is tested with an M12 connector, mounted in a steel housing and molded with Silgel 612 silicone molding compound. This is PR electronics' recommended method to comply with specifications and EMC data.

Input specifications:

RTD input types:

RTD type	Min. value	Max. value	Min. span	Standard
Pt100	-200°C	+850°C	25°C	IEC 60751
Ni100	-60°C	+250°C	25°C	DIN 43760
Lin. R	0 Ω	10000 Ω	30 Ω	-----

Max. offset 50% of selec. max. value
 Cable resistance per wire (max.) 10 Ω
 Sensor current > 0.2 mA, < 0.4 mA
 Effect of sensor cable resistance (3-wire) < 0.002 Ω / Ω
 Sensor error detection Yes

Output specifications:

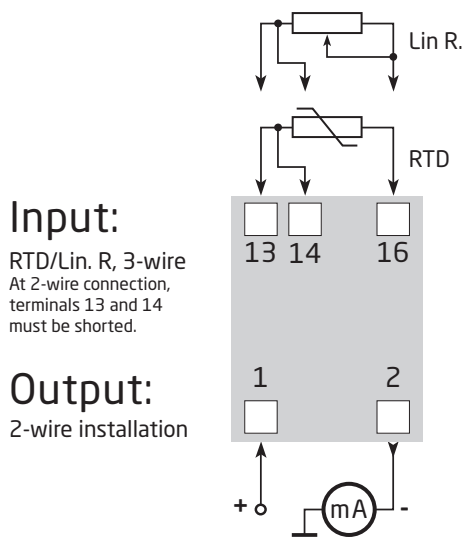
Signal range. 4...20 mA
 Min. signal range. 16 mA
 Updating time 135 ms
 Load resistance. $\leq (V_{supply} - 8) / 0.023 [\Omega]$
 Load stability < $\pm 0.01\%$ of span / 100 Ω
 Sensor error detection:
 Programmable 3.5...23 mA
 NAMUR NE43 Upscale 23 mA
 NAMUR NE43 Downscale. 3.5 mA

of span = of the presently selected range

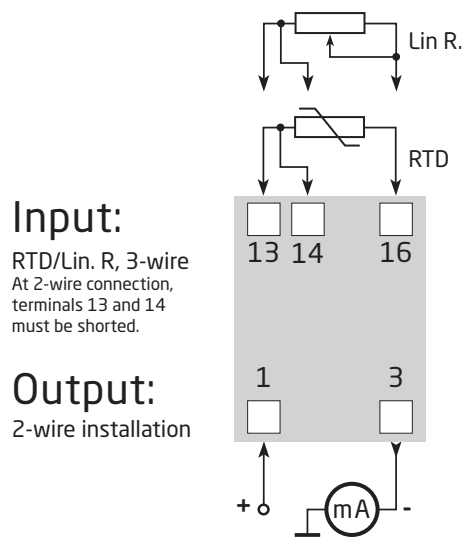
Observed authority requirements:

RoHS 2011/65/EU

Connections

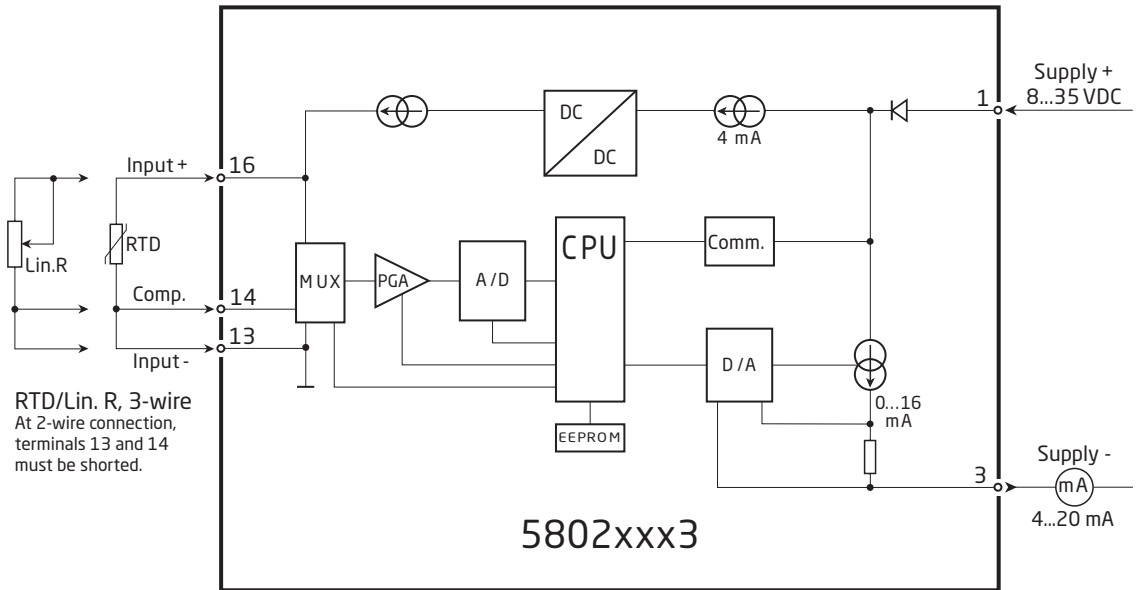
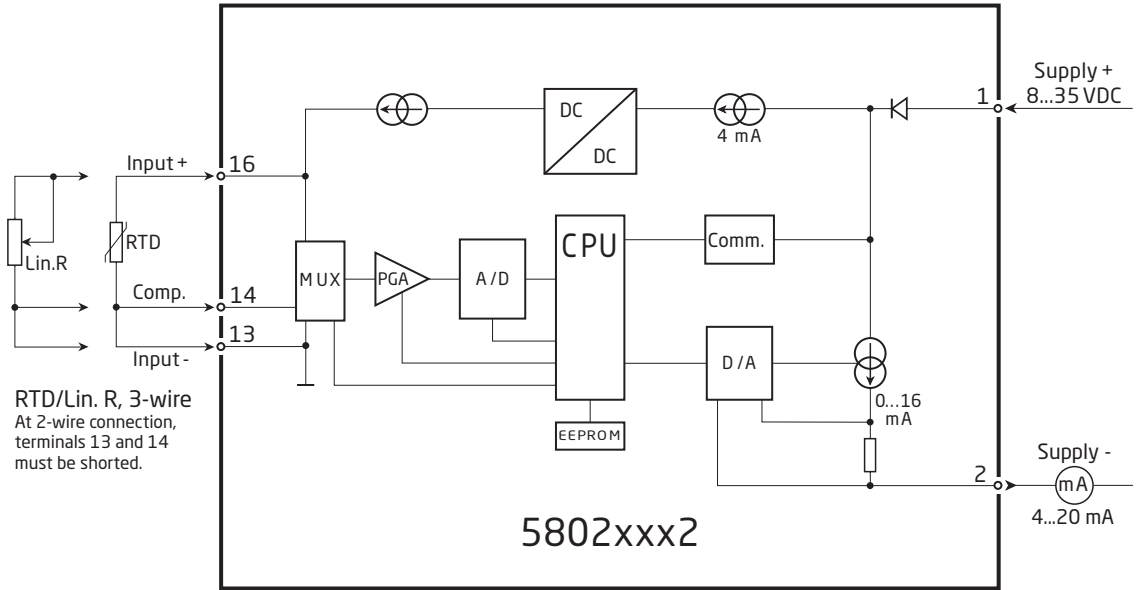


5802xxx2 connection



5802xxx3 connection

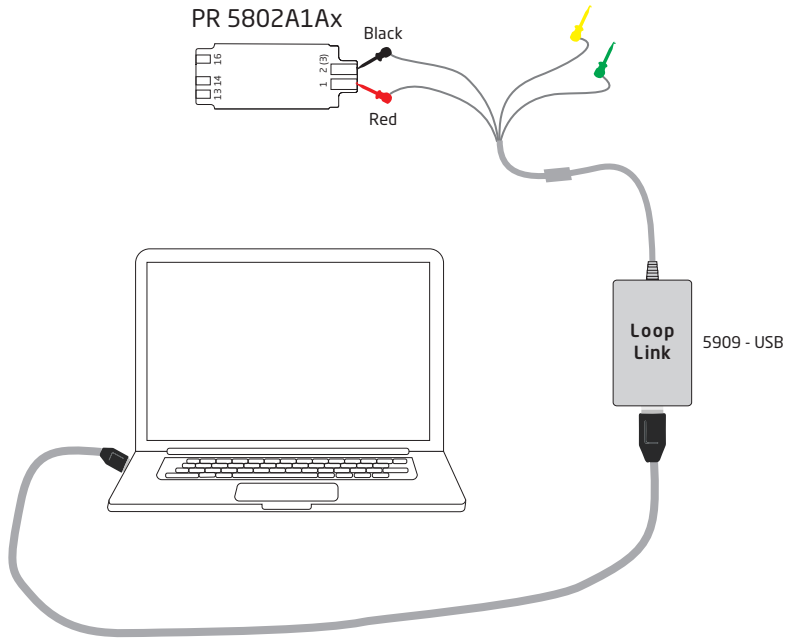
Block diagrams



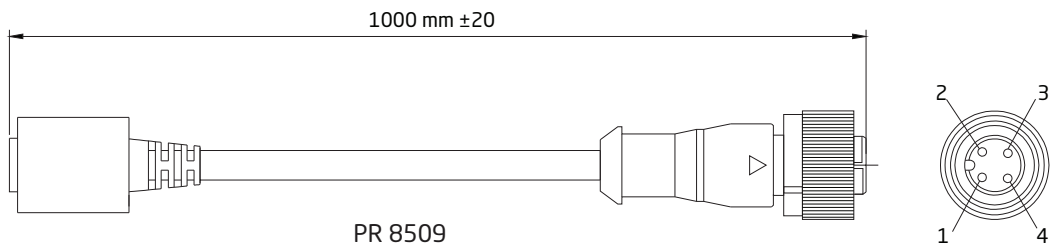
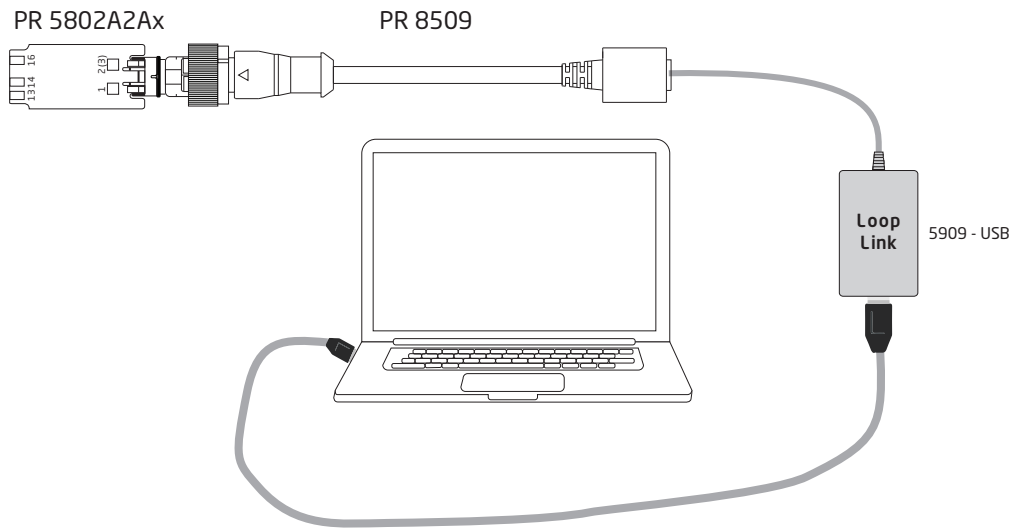
Programming

5802 can be configured in with PR electronics A/S' communications interface Loop Link and PReset PC configuration software.

For programming please refer to the drawing below and the help functions in PReset.

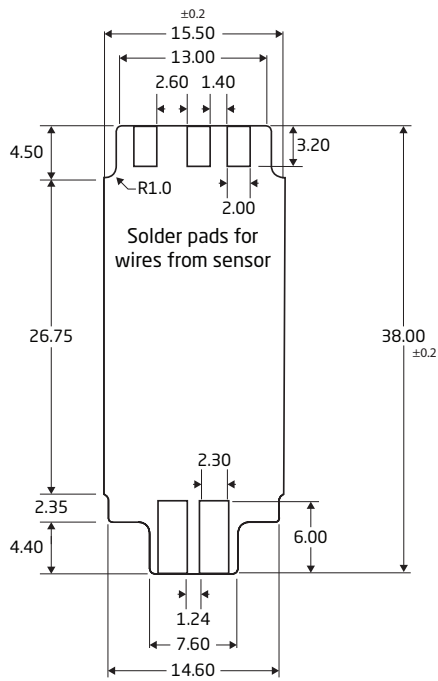


Please note: In order to connect Loop Link to devices with attached M12 connector (5802A2Ax), the PR 8509 interface cable is needed (order separately).

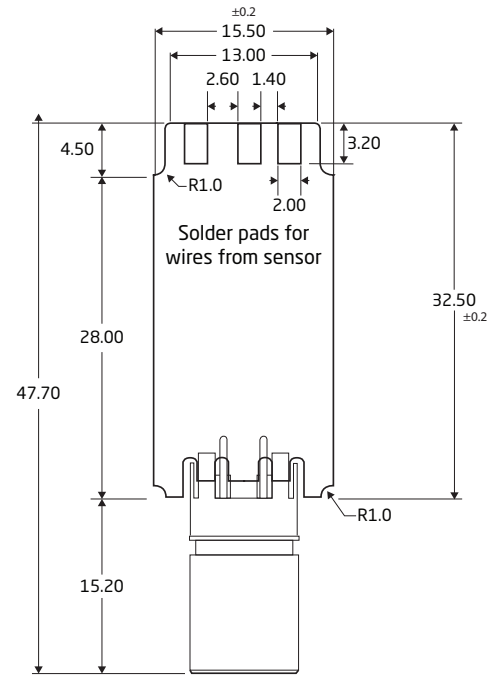


Mechanical specifications

5802A1Ax:



5802A2Ax:



4-pin male right-angle M12 connector
(code A)

Document history

The following list provides notes concerning revisions of this document.

Rev. ID	Date	Notes
100	1911	Initial release of the product

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All our devices are backed by expert service and a 5-year warranty. With each product you purchase, you receive personal technical support and guidance, day-to-day delivery, repair without charge within the warranty period and easily accessible documentation.

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with a global reach. This means that we are always nearby and know your local markets well.

We are committed to your satisfaction and provide PERFORMANCE MADE SMARTER all around the world.

For more information on our warranty program, or to meet with a sales representative in your region, visit prelectronics.com.

Benefit today from *PERFORMANCE MADE SMARTER*

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.

Our innovative, patented technologies are derived from our extensive R&D facilities and from having a great understanding of our customers' needs and processes. We are guided by principles of simplicity, focus, courage and excellence, enabling some of the world's greatest companies to achieve **PERFORMANCE MADE SMARTER**.