RT420 Temperature Transmitter

4...20 mA transmitter for Pt100 sensors

2-, 3- or 4-wire sensors

Accuracy better than 0.25°C

Sensor offset correction

Automatic/configurable cable resistance compensation (2-wire)

Sensor error detection

2-way configuration (Windows)

Configurable damping and status indication

Engineering unit °C or °F

PC datalogging

Excellent temperature stability

Description

The RT420 is a 4...20 mA loop-powered transmitter for Pt100 sensors.

Either 2-, 3- or 4-wire sensors can be used. For 2-wire sensors an automatic balancing of the sensor cable resistance is possible with shorted sensor cable. The cable resistance can be manually configured as well.

Using a PC, the Windows-based Flex-program and a FlexProgrammer configuring unit, the following parameters can be configured via the output connectors (2-way communication): TAG no., number of wires, cable resistance, error detection level, measuring range/unit, damping, offset and status indication.

The Flex-program has a datalogging facility enabling the user to monitor measuring results or calibrate the measuring setup.

The RT420 is embedded in silicone which makes it resistant to humid environments.

The RT420, fitting into the DIN B housing, has a 6 mm center hole for quick sensor replacement. The spring loaded mounting screws ensure a safe fastening even in vibrating environments.

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Technical Data

Input

Accuracy	
Span ≤ 250°C:	< 0.25°C {2}
Span > 250°C:	0.1% of span
Sample time	< 0.7 sec.
Pt100 Standard	IEC/DIN/EN 60 751-2
RTD measuring current	0.3 mA, continuously
Sensor type	2-, 3- or 4-wires {1}
Sensor short detection	< -225°C
Sensor break detection	> 875°C
Error detection delay	< 10 sec.
Compensation for cable error	< 0.02°C/Ohm (3-wire)
Cable resistance	Max. 20 Ohm /wire {1}
Measuring range	-200...850°C {1}
Measuring unit	°C or °F {1}
Minimum span	25°C
Protection	+/- 35 V_{dc}
Suppression	50 and 60 Hz
Resolution	14 bit
Repeatability	< 0.1°C
Ripple immunity	IEC 770 6.2.4.2
Offset Adjustment	Max. ± 10°C {1}

Output

Signal span	4...20 mA, 2-wire
Accuracy	< 0.1% of signal span
Supply range	8...35 V_{dc}
Ripple immunity	3 V_{rms}
Load equation	$R_L \leq (V_{cc} - 8)/23$ [kOhm]
Up/Down scaling limits	23 mA/3.5 mA {1}
Damping	0...30 sec. {1}
Protection	Reversed polarity protection
Resolution	12 bit
Effect of variations in supply voltage:	
Output current	0.01% per volt
TAG No.	15 characters {1}

Environmental conditions

Operating temperature	-40...85°C
Storage temperature	-55...90°C
Humidity	< 98% RH, cond. (IEC 68-2-38)
Vibrations	GL, test 2 (IEC 68-2-6)
Long-term test	IEC 770 6.3.2

EMC data

Generic standards	EN 61000-6-3, EN 61000-6-2
Product standards	EN 61326
NAMUR	NAMUR NE21

Mechanical data

Dimensions	ø44 x 19 mm
Protection class	Housing: IP 40

Other data

Temperature drift	Typ. 0.003% per °C Max. 0.01% per °C
Power-on time	10 sec.

Test conditions

Configuration	0...100°C
Amb. temperature	23°C +/- 2°C
Power supply	24 V_{dc}

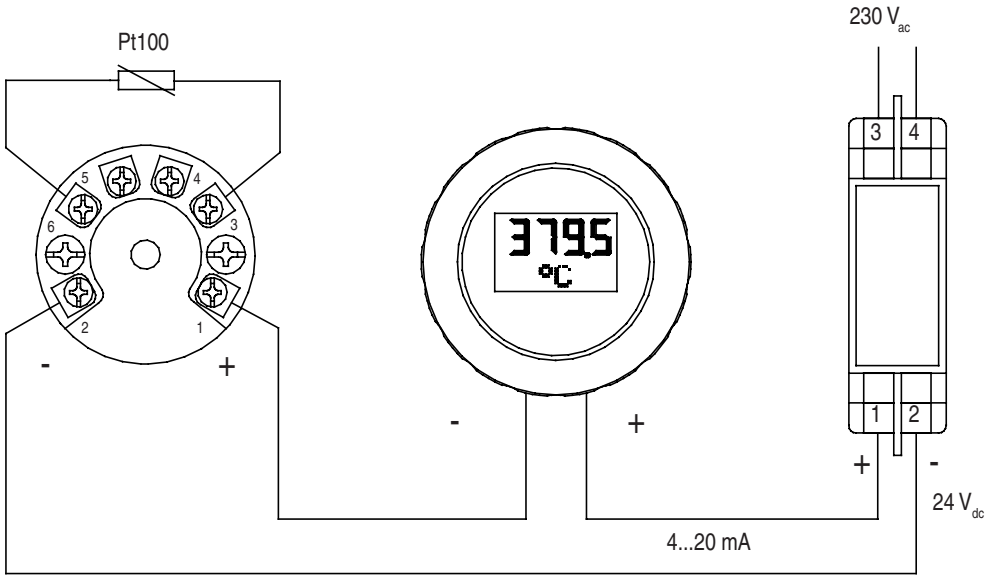
Disposal of product and packing

According to national laws or by returning to Bourdon-Haenni

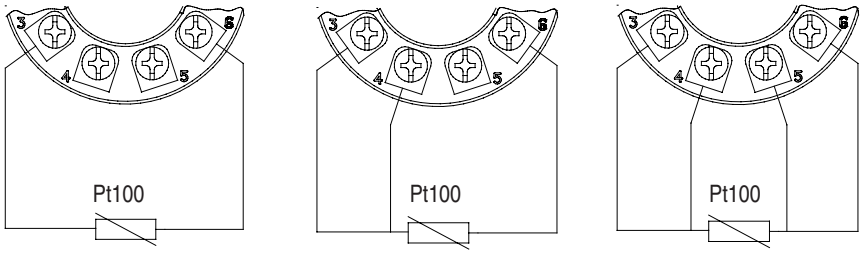
Notes

{1}	Configurable
{2}	Lower range limit ≤ 100°C

Application



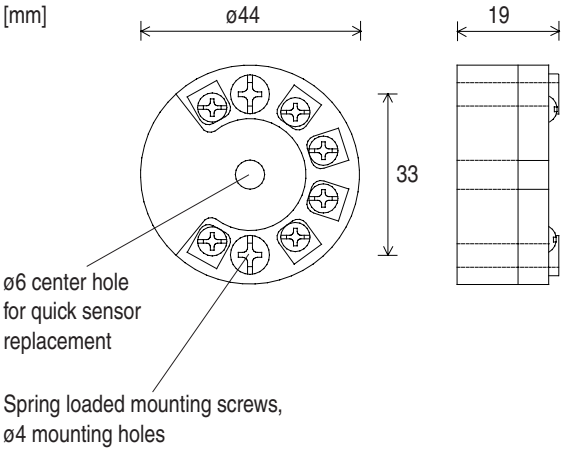
Electrical Installation



2-wire sensor | 3-wire sensor | 4-wire sensor

Dimensional Drawing

[mm]



Accessories

FlexProgrammer configuration set,
comprises:

FlexProgrammer with 9 pole RS232C cable
3.5" Program diskettes
Battery plug
Cable with test plugs

Configuration

Note:
Disconnect loop supply before connecting the FlexProgrammer to RT420.