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PT31PR

UNINSULATED RESISTANCE CABLE THERMOMETER WITH SPRING

PT31PR has been designed for application, where is necessary to provide the continual pressure top of stem to measured place, where are some vibration mainly. It is used for measuring bearing temperature in large rotating machines mostly.

A Pt100 temperature sensing element according to DIN EN 60751, class A in 4-wire circuit is used by default. Versions with Pt500 Pt1000 or Ni1000 are also possible. The connection is also available in 2-wire and 3-wire circuits as an option.

Metal parts is made from stainless steel of 17248 grade. The spring is made from stainless or nickel-plated steel. Mechanical dimensions as well as the cable length may be customized. This is uninsulated design, stem is connected to screw-fitting.

PT31PR Cable design, diameter 4..8mm, suitable for bearing housing units, uninsulated.
Fittings can be used: M10x1, M10x1,5, M12x1,5 M12x1,75; G1/4, G1/2; M20x1,5; M27x2, G3/4or others..
Immersion length „Y“ according to order
Immersion length Y = depth of hole + 10mm! Spring compression is max. 20mm.

Technical data:

Basic design:	6x100mm M12x1,75 Pt100/B with 4w cable 1m, max. +200°C		
Measuring range:	-30…+80°C with PVC cable	(τ=cca	10sec)
	-60…+200°C with MCBE-AFEP cable	(τ=cca	10sec)
	-40…+200°C with PTFE cable	(τ=cca	10sec)
Dielectric strength:	500V, dielectric resistance min. 20MΩ (circuit to metal case)		

Sensors used:

Pt100/A,B	PT1000/A,B
Ni1000/5000	Ni1000/6180
NTC ….	KTY …
PTC ….	SMT 160-30-92
DALLAS..	Others…

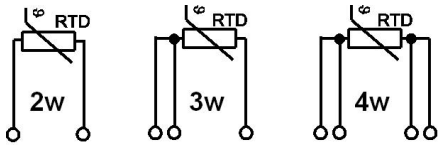
It is possible to use a pair os sensors in one stem.

Type test: Standart type test to ČSN EN 60770-1 ed.2

The most widely used cables:

- 2w cable 80°C has 2 PVC-insulated wires 0,34mm^2, externally PVC, low oil resistance (ex. ∅ 4,8 mm)
- 4w cable 80°C has 4 PVC-insulated wires 0,25mm^2 , externally PVC, low oil resistance (ex. ∅ 4,8 mm)
- 4w cable 200°C has 4 teflon isolation wires 0,09mm^2, without metal shielding, externally teflon (ex. ∅ 2,5 mm)
- 2w cable 200°C has 2 teflon insulated wires 0,22mm^2, metal shielding, externally teflon (ex. ∅ 3,8 mm)
- 4w cable 200°C has 4 teflon insulated wires 0,22mm, metal shielding, externally teflon (ex. ∅ 3,5 mm)
- 2w cable 200°C has 2 teflon insulated wires 0,22mm^2, without metal shielding, externally silicone (ex. ∅ 3,6 mm))
- 2w cable 200°C has 2 teflon insulated wires 0,15mm^2, metal shielding, externally silicone (ex. ∅ 3,0 mm)
- 3w cable 200°C has 3 teflon insulated wires 0,15mm^2, metal shielding, externally silicone (ex. ∅ 3,1 mm)
- 3w cable 200°C has 3 teflon insulated wires 0,22mm^2, metal shielding, externally silicone (ex. ∅ 4,5 mm)
- 4w cable 200°C has 4 teflon insulated wires 0,22mm^2, metal shielding, externally silicone (ex. ∅ 4,5 mm)
- 6w cable 200°C has 6 teflon insulated wires 0,22mm^2, metal shielding, externally silicone (ex. ∅ 5,2 mm))

Basic electric connection :

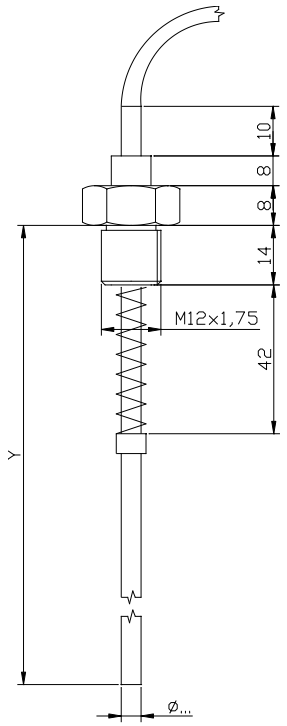


Wire connection:

Design with one sensor, four-wire 80°C:	white + yellow, brown + green
Design with one sensor, four-wire 200/350°C:	black + white, red + blue (or red + red, white + white)
Design with one sensor, three-wire 200/350°C:	white, red + blue
Design with two sensors 80°C:	white + yellow - sensor "A", brown + green - sensor "B"
Design with two sensors 200/350°C:	black, white - sensor "A", red, blue - sensor "B" (or 2 x red - sensor "A", 2 x white - sensor "B")
Design with two sensors three-wire 200°C	red + blue, white - sensor "A", black + brown, yellow - sensor "B"
Design with one sensor, two-wire:	two wires of different colours

The ends of the conductors are stripped and tinned. For temperature above 200°C is used crimp barrels.

Dimension drawing:



Immersion length Y = depth of hole + 10mm! Spring compression is max. 20mm.

The order must include:

- type of thermometer PT31PR
- accuracy of sensors Pt100 A, B or other specifications
  (double sensor, other type of sensor - e.g. Pt1000, Ni1000, KTY, PTC, thermocouple…)
  If not specified, PT100/B will be used.
- length of stem
- length of cable
- screw fitting
- expected maximum temperature (it depends on cable type)
- quantity

Examples of orders:

Most frequently ordered designs	PT31PR 4x180 M10x1 Pt100/A 4w Tf. 5m cable 200°C	3 pcs
	PT31PR 6x100 M12x1,75 Pt100/B 4w 3m cable 80°C	1 pc
	PT31PR 8x190 G1/2 Pt100/B 4w 4m cable 200°C	2 pcs

A calibration protocol can be ordered.

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