# Rawet s.r.o.

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## RESISTANCE THERMOMETERS: CONTACT, OPEN SPACE AND INTERIOR MOUNTED

| Model: | PT05 (PTP05) pipeline mounted | PT10 (PTP10) open space – outdoor | PT20 (NIP20) interior mounted |
|---|---|---|---|

- imperceptible in the interior
- 0... 5V output possible

- easy installation
  4... 20mA current output possible

- resistant to outdoor environment (IP65)
- 4... 20mA current output possible

- extremely low cost

### Pipeline mounted thermometers:
The instrument is designed to measure the pipeline surface temperature. The measuring part comprises a plastic moulding into which a copper sheet is pressed-in. Being fitted to a plastic connection head, it is fixed to the pipeline with a fastener band. Two longitudinal bosses provide optimum heat transfer from the pipeline into the copper sheet for any piping whose diameter exceeds 15mm. The pipeline maximum diameter is determined by the length of the fastener band available. The sheet temperature is measured by means of a Pt100 flat mini-sensor, which is thermally isolated from the ambiance. Pt100/A or B, Pt1000, possibly also Ni1000 in two or four-wire design may be used. By arrangement, a double sensor, too.

**PT05** - outdoor application, IP65, -25…+120°C, no converter
**PTP05** - outdoor application, IP65, with a PP100 converter, output: 4…20mA
  - arbitrary measuring range <-25…+120>°C, minimum temperature interval: 50°C, the head temperature must not exceed +80°C
  - accuracy: about ±2.5°C (depending on the sensor to pipeline thermal contact)
  - for other parameters, see the specifications of PP100 converter, which is used in this model.

### Open space thermometers:
The open space thermometers have been designed to measure the temperature of the air. Pt100/A or B, Pt1000, possibly also Ni1000 nickel sensor in two or four-wire design may be used in them. By arrangement, a double sensor, too.

**PT10** - outdoor application, IP65, -50…+80°C
**PTP10** - outdoor application, IP65, with a PP100 converter, output: 4…20mA
  - power supply 12…34V DC, via output line, maximum ripple, 0.5V
  - arbitrary measuring range <-50…+120>°C, minimum temperature interval: 50°C
  - accuracy: 0.5% of full scale deflection (max. ±0.25°C)
  - for other parameters, see the specifications of PP100 converter, which is used in this model.

### Interior mounted thermometers:
**PT20** - indoor design, IP30, -20…+60°C, no converter
**NIP20** - indoor design, converter 0…+50°C / 0-5V, power supply 12 to 34V DC

| | |
|---|---|
| - supply voltage: | 12 to 34V DC, maximum ripple: 0.5V |
| - output: | 0-5V, max.1mA |
| - measuring range: | 0...+50°C (may be modified) |
| - accuracy: | 0.3°C within the 20 to 30°C interval |
| | 0.8°C, throughout measuring range |
| - supply voltage effect: | 0.05% / 10V |
| - connection: | 1…+24V, 2…OUT 0…5V, 3…GND |

### Type tests:
Standard type test: to ČSN IEC 751
EMC: to ČSN EN 61326-1
Safety: assessed acc. to ČSN EN 61010-1

**Terminal connection:**
Converter models (PTP05, PTP10):    2 terminals: ....output current loop (polarity insensitive)
Converter model (NIP20):    3 terminals (see Fig.): 1…+24V, 2…OUT 0…5V, 3…GND
No-converter models (PT05, PTP05):    - with a single sensor:    2 terminals ....sensor A (polarity insensitive)
    - with two sensors:    4 terminals: 1, 2…sensor A;  3, 4…sensor B
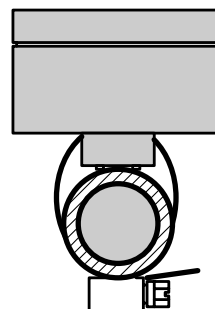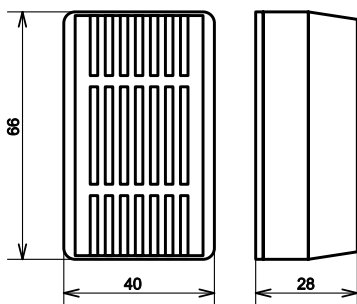The terminals accept wires with cross sections not exceeding 2.5mm$^2$.
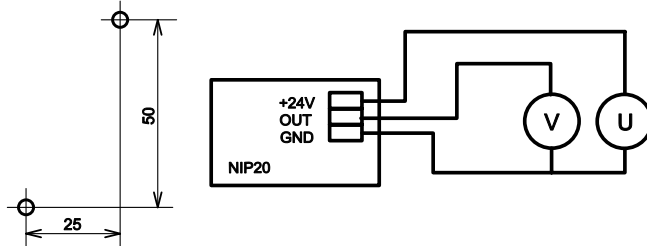
**Dimensions:**

**PT05 (PTP05):**
**pipeline mounted**

58    10    35

64    85    46
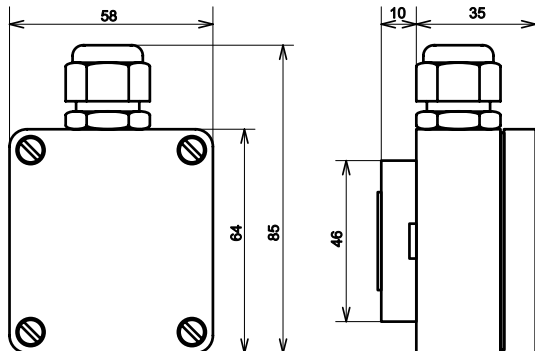
**Mounting example:**

**PT20 (NIP20)**
**interior mounted**

66    40    28

50    25

**Connection:**

+24V
OUT
GND

NIP20

V    U

**PT10 (PTP10):**
**open space – outdoor**

58    35

64    165

65±2

Ø 8
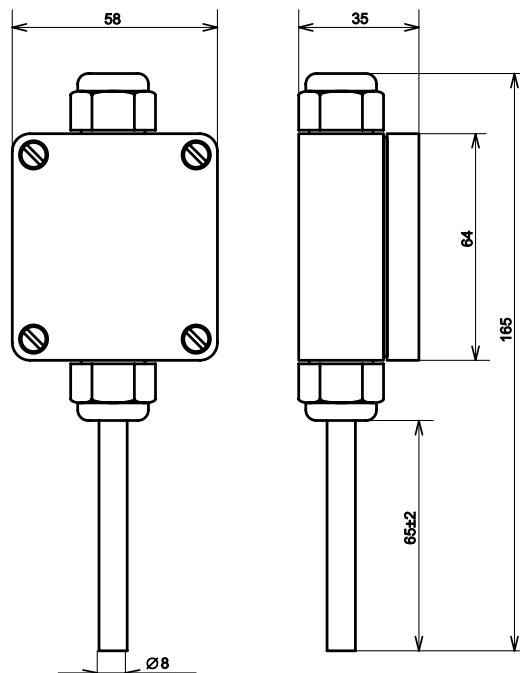
**Your order should include:**

**- no-converter model**
- thermometer type
- accuracy of Pt100 A, B sensor, or other special requirements
        (four-wire connection, double sensor, etc.)
- quantity (No. of pieces)

**- converter model:**
- thermometer type
 measuring range [°C] (see the Table)
- quantity (No. of pieces)
Most frequently ordered input ranges:

| | | | |
|---|---|---|---|
| PTP05 | -20…+60°C | PTP10: | -50…+50°C |
| | 0…+50°C | | -20…+60°C |
| | 0…+80°C | | 0…+50°C |
| | 0…+100°C | | -25…+80°C |
| | 0…+120°C | | |

NIP20:    0…+50°C/0…+5V

**Purchase order examples:**
PT05  Pt100/B  2 pcs.
PT20  Pt100/A  10 pcs.
PT10  Ni1000/B  1 pc.
PTP05  0…+120°C  1 pc.
PTP10  -50…+50°C  2 pcs.
NIP20  0…+50°C/0…+5V  3 pcs.
Any thermometer can be provided with a calibration protocol.