



# 3-wire sensor up to 200 °C and 400 °C



## Platinum sensor with wires

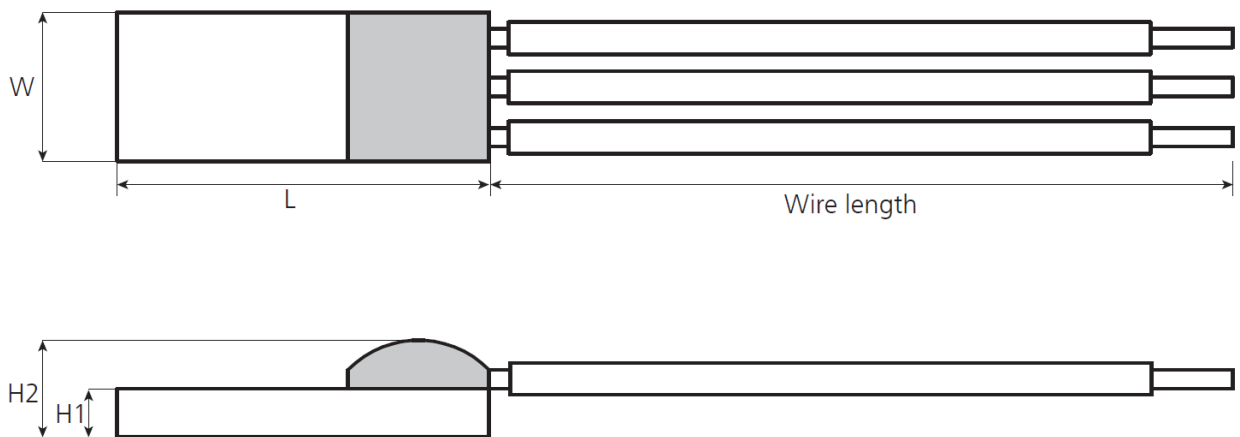
For low to medium temperatures



### Benefits & characteristics

- Compensation of the wire resistance by 3-wire construction
- Excellent long-term stability
- Low self-heating
- Long insulated wires
- Well suited for applications with tight tolerances
- Fast response time
- Metallized backside available
- Customer-specific sensor available upon request

### Illustration <sup>1)</sup>



<sup>1)</sup> for actual size, see dimensions



## Technical data



|                              |                    |      |
|------------------------------|--------------------|------|
| Operating temperature range: | -50 °C to +200 °C  | (2I) |
|                              | -200 °C to +400 °C | (4W) |



Nominal resistance:\* 100 Ω at 0 °C



Characteristics curve:\* 3850 ppm/K



Long-term stability: < 0.04 % at 1000 h at maximal operating temperature



Tolerance class: \* **iST reference**

(dependent on temperature range) IEC 60751 F0.15 A

IEC 60751 F0.3 B

IEC 60751 F0.6 C



|              |                    |  |
|--------------|--------------------|--|
| Connection:* | -50 °C to +200 °C  | Cu/Ag-wire, AWG30, PTFE-insulated (solderable, weldable, crimpable), 5 mm stripped |
|              | -200 °C to +400 °C | Ag wire, Ø 0.25 mm   |

Alternative wire construction:\* Inverted wires

Extended wires

Recommended applied current: 1 mA at 100 Ω

*1)Self-heating must be considered* 0.5 mA at 500 Ω

0.3 mA at 1000 Ω

Other alternatives:\* Metallized backside

Housed in round ceramics (for dry environments only)

Grouped and paired

Substrate thickness

\* Customer-specific alternatives available



## Order Information

| Nominal Resistance  | Size | Dimensions<br>(L x W x H1 / H2 in mm)<br>L ±0.2 mm, W ±0.2 mm,<br>H1 ±0.1 mm, H2 ±0.3 mm | Class*          | Order code | Product name<br>(secondary reference) | Wire length<br>in mm | Special |
|---|------|--|-----------------|------------|---------------------------------------|----------------------|---------|
| <b>3 wires, 2I (Cu/Ag-wire, AWG30, PTFE-insulated), 5 mm stripped</b> |      |  |                 |            |                                       |                      |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 200                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 200                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 200                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 450                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 450                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 450                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 600                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 600                  |         |
| 100 Ω   | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 600                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 200                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 200                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 200                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 450                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 450                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 450                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.15 (class A) | On request | On request                            | 600                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.3 (class B)  | On request | On request                            | 600                  |         |
| 1000 Ω  | 232  | 2.3 x 2 x 0.65 / 1.3   | F0.6 (class C)  | On request | On request                            | 600                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | P0K1.520.2I.A.200-3                   | 200                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | 100948     | P0K1.520.2I.B.200-3                   | 200                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | P0K1.520.2I.C.200-3                   | 200                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | 100962     | P0K1.520.2I.A.450-3                   | 450                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | 100174     | P0K1.520.2I.B.450-3                   | 450                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | 100662     | P0K1.520.2I.C.450-3                   | 450                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | P0K1.520.2I.A.600-3                   | 600                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | 100547     | P0K1.520.2I.B.600-3                   | 600                  |         |
| 100 Ω   | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | 100663     | P0K1.520.2I.C.600-3                   | 600                  |         |



| Nominal Resistance | Size | Dimensions<br>(L x W x H1 / H2 in mm)<br>L ±0.2 mm, W ±0.2 mm,<br>H1 ±0.1 mm, H2 ±0.3 mm | Class*          | Order code | Product name<br>(secondary reference) | Wire length in mm | Special |
|--------------------|------|--|-----------------|------------|---------------------------------------|-------------------|---------|
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 200               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 200               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 200               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 450               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 450               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 450               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 600               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 600               |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 600               |         |

### 3 wires, 4W (Ag wire, Ø 0.25 mm)

|        |     |                      |                 |            |            |     |  |
|--------|-----|----------------------|-----------------|------------|------------|-----|--|
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 200 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 200 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 200 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 450 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 450 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 450 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 600 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 600 |  |
| 100 Ω  | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 600 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 200 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 200 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 200 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 450 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 450 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 450 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.15 (class A) | On request | On request | 600 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.3 (class B)  | On request | On request | 600 |  |
| 1000 Ω | 232 | 2.3 x 2 x 0.65 / 1.3 | F0.6 (class C)  | On request | On request | 600 |  |



| Nominal Resistance | Size | Dimensions<br>(L x W x H1 / H2 in mm)<br>L ±0.2 mm, W ±0.2 mm,<br>H1 ±0.1 mm, H2 ±0.3 mm | Class*          | Order code | Product name<br>(secondary reference) | Wire length<br>in mm | Special |
|--------------------|------|--|-----------------|------------|---------------------------------------|----------------------|---------|
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 200                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 200                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 200                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 450                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 450                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 450                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | P0K1.520.4W.A.600-3                   | 600                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | 100175     | P0K1.520.4W.B.600-3                   | 600                  |         |
| 100 Ω              | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | P0K1.520.4W.C.600-3                   | 600                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 200                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 200                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 200                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 450                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 450                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 450                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.15 (class A) | On request | On request                            | 600                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.3 (class B)  | On request | On request                            | 600                  |         |
| 1000 Ω             | 520  | 5.0 x 2.1 x 0.65 / 1.2   | F0.6 (class C)  | On request | On request                            | 600                  |         |
| 100 Ω              | 538  | 5.0 x 3.8 x 0.65 / 1.3   | F0.15 (class A) | On request | P0K1.538.4W.A.600-3                   | 600                  |         |
| 100 Ω              | 538  | 5.0 x 3.8 x 0.65 / 1.3   | F0.3 (class B)  | 100182     | P0K1.538.4W.B.600-3                   | 600                  |         |
| 100 Ω              | 538  | 5.0 x 3.8 x 0.65 / 1.3   | F0.6 (class C)  | 100666     | P0K1.538.4W.C.600-3                   | 600                  |         |

## Additional Documents

Application Note

Document name: ATP\_E



## Order Information

### Platinum Sensor - Secondary reference



#### Material

P = Platinum

#### TCR

|                   |   |
|-------------------|---|
| = Pt 3850 ppm/K   | G = Pt 3911 ppm/K   |
| U = Pt 3750 ppm/K | W = Pt 3850 ppm/K (extended operating temperature range in class A) |

#### Resistance in $\Omega$ at 0°C

#### Size in mm

#### Operating temperature range

|                         |                          |
|-------------------------|--------------------------|
| 1 = -50 °C to + 150 °C  | 6 = -200°C to + 600 °C   |
| 2 = -50 °C to + 200 °C  | 7 = -200 °C to + 750 °C  |
| 3 = -200 °C to + 300 °C | 8 = -200 °C to + 850 °C  |
| 4 = -200 °C to + 400 °C | 10 = -70 °C to + 1000 °C |

#### Connections

|                    |                                     |
|--------------------|-------------------------------------|
| S = SIL            | FK = Flat wire customer specific    |
| I = Insulated wire | SW = Perpendicular wire             |
| K = Extended wire  | L = Insulated stranded wire         |
| W = Wire           | E = Enameled Cu-wire                |
| FW = Flat wire     | SE = Perpendicular enameled Cu-wire |

#### Tolerance class

|                     |                       |
|---------------------|-----------------------|
| A = IEC 60751 F0.15 | K = Customer-specific |
| B = IEC 60751 F0.15 | P = Pair              |
| C = IEC 60751 F0.15 | G = Group             |
| Y = IEC 60751 F0.15 |                       |

#### Wire length in mm

#### Special

|                                 |                         |
|---------------------------------|-------------------------|
| T = Substrate thickness 0.25 mm | M = Metallized backside |
| D = Substrate thickness 0.38 mm | U = Inverted welding    |
| R = Round housing               | S = Special             |
| W = Sintered powder             |                         |

P      OK1.    520.    2    I.    B.    450-3



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