Benefits & Characteristics

- Same dimensions as a traditional wire wound sensor - easy interchangeability into existing applications
- Easy to assemble (boreholes etc.)
- Excellent long-term stability
- Vibration and temperature shock resistant (depending on assembly)
- Available in class F0.15 within a temperature range from -200 °C to +600 °C (PW-Series)
- Fast response time (depending on assembly)
- Low self-heating
- Customer-specific solutions available upon request

Illustration 1)

Dimension tolerances: Ø ±0.2 mm, L ±1 mm, Lw (up to 30 mm) ±1 mm

1) For actual size, see dimensions

Technical Data

Operating temperature range: -200 °C to +600 °C
Nominal resistance:* 100 Ω at 0 °C
500 Ω at 0 °C
1000 Ω at 0 °C
Characteristics curve:* 3850 ppm/K
3911 ppm/K (PG Series)
Long-term stability: < 0.04 % at 1000 h at maximal operating temperature
Tolerance class (dependent on temperature range):*

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>IST AG Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEC 60751 F0.15</td>
<td>A</td>
</tr>
<tr>
<td>IEC 60751 F0.3</td>
<td>B</td>
</tr>
<tr>
<td>IEC 60751 F0.6</td>
<td>C</td>
</tr>
<tr>
<td>IEC 60751 F0.1</td>
<td>Y</td>
</tr>
</tbody>
</table>

Connection:* Ag-wire, Ø 0.25 mm (solderable, weldable)
Pt-cladded Ni-wire, Ø 0.2 mm (solderable, weldable, crimpable, brazeable)
Pt-wire, Ø 0.2 mm (solderable, weldable, crimpable, brazeable)
### Recommended applied current:

<table>
<thead>
<tr>
<th>Current</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mA</td>
<td>100 Ω</td>
</tr>
<tr>
<td>0.5 mA</td>
<td>500 Ω</td>
</tr>
<tr>
<td>0.3 mA</td>
<td>1000 Ω</td>
</tr>
</tbody>
</table>

\(^2\) Self-heating must be considered

### Other alternatives:
- Insulated wires, stranded wires etc.
- Two sensors in one ceramic housing

\(*\) Customer-specific alternatives available

### Order Information -200 °C to +400 °C (Ag-wire, Ø 0.25 mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (Ø x L; L (_w) in mm)</th>
<th>F0.1 (class Y)</th>
<th>F0.15 (class A)</th>
<th>F0.3 (class B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>281</td>
<td>2.8 x 13.0; 10.0</td>
<td>Upon request</td>
<td>P0K1.281.4W.A.010.R</td>
<td>P0K1.281.4W.B.010.R</td>
</tr>
<tr>
<td>451</td>
<td>4.5 x 13.0; 8.0</td>
<td>Upon request</td>
<td>P0K1.451.4W.A.008.R</td>
<td>Upon request</td>
</tr>
<tr>
<td>451</td>
<td>4.5 x 13.0; 10.0</td>
<td>Upon request</td>
<td>Upon request</td>
<td>P0K1.451.4W.B.010.R</td>
</tr>
</tbody>
</table>

### Order Information -200 °C to +600 °C (Pt-cladded Ni-wire, Ø 0.2 mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (Ø x L; L (_w) in mm)</th>
<th>F0.1 (class Y)</th>
<th>F0.15 (class A)</th>
<th>F0.3 (class B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>281</td>
<td>2.8 x 13.0; 7.0</td>
<td>Upon request</td>
<td>P0K1.281.6W.A.007.R</td>
<td>P0K1.281.6W.B.007.R</td>
</tr>
<tr>
<td>451</td>
<td>4.5 x 13.0; 7.0</td>
<td>Upon request</td>
<td>P0K1.451.6W.A.007.R</td>
<td>P0K1.451.6W.B.007.R</td>
</tr>
<tr>
<td>2x 100 Ω</td>
<td>2.8 x 13.0; 10.0/15.0</td>
<td>Upon request</td>
<td>Upon request</td>
<td>2xP0K1.281.6W.B.010/015.R</td>
</tr>
<tr>
<td>451</td>
<td>4.5 x 13.0; 6.0/8.0</td>
<td>Upon request</td>
<td>Upon request</td>
<td>2xP0K1.451.6W.B.006/008.R</td>
</tr>
<tr>
<td>2x 1000 Ω</td>
<td>2.8 x 13.0; 7.0</td>
<td>Upon request</td>
<td>P1K0.281.6W.A.007.R</td>
<td>P1K0.281.6W.B.007.R</td>
</tr>
<tr>
<td>451</td>
<td>4.5 x 13.0; 7.0</td>
<td>Upon request</td>
<td>Upon request</td>
<td>P1K0.451.6W.B.007.R</td>
</tr>
</tbody>
</table>

### Nominal resistance: 1000 Ω at 0 °C

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (Ø x L; L (_w) in mm)</th>
<th>F0.1 (class Y)</th>
<th>F0.15 (class A)</th>
<th>F0.3 (class B)</th>
</tr>
</thead>
</table>
Order Information -200 °C to +400 °C, PG-Series (Pt-cladded Ni-wire, Ø 0.2 mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (Ø x L; L in mm)</th>
<th>F0.1 (class Y)</th>
<th>F0.15 (class A)</th>
<th>F0.3 (class B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>281</td>
<td>2.8 x 13.0; 6.0</td>
<td>Upon request</td>
<td>PG0K1.281.4K.A.006.R</td>
<td>PG0K1.281.4K.B.006.R</td>
</tr>
</tbody>
</table>

Order code

| Order code | 310.00447 | 310.00264 |

Order Information -200 °C to +600 °C, PW-Series (Pt-wire, Ø 0.2 mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions (Ø x L; L in mm)</th>
<th>F0.1 (class Y)</th>
<th>F0.15 (class A)</th>
<th>F0.3 (class B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>281</td>
<td>2.8 x 13.0; 4.0</td>
<td>PW0K1.281.7W.Y.004.R</td>
<td>PW0K1.281.7W.A.004.R</td>
<td>PW0K1.281.7W.B.004.R</td>
</tr>
</tbody>
</table>

Order code

| Order code | 310.00263 | 310.00255 | 310.00408 |

Additional Documents

<table>
<thead>
<tr>
<th>Document name:</th>
<th>Application Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATP_E</td>
<td>ATP_E</td>
</tr>
</tbody>
</table>
Order Information
Platinum Sensor
Secondary reference

Material

\[ P = \text{Platinum} \]

TCR

\[
\begin{align*}
P &= \text{Pt 3850 ppm/K} \\
G &= \text{Pt 3911 ppm/K} \\
U &= \text{Pt 3750 ppm/K} \\
W &= \text{Pt 3850 ppm/K (extended operating temperature range in class A)}
\end{align*}
\]

Resistance in \( \Omega \) at 0 °C

Size in mm

Operating temperature range

\[
\begin{align*}
1 &= -50 \, ^\circ\text{C} \text{ to } +150 \, ^\circ\text{C} \\
2 &= -50 \, ^\circ\text{C} \text{ to } +200 \, ^\circ\text{C} \\
3 &= -200 \, ^\circ\text{C} \text{ to } +300 \, ^\circ\text{C} \\
4 &= -200 \, ^\circ\text{C} \text{ to } +400 \, ^\circ\text{C} \\
6 &= -200 \, ^\circ\text{C} \text{ to } +600 \, ^\circ\text{C} \\
7 &= -200 \, ^\circ\text{C} \text{ to } +750 \, ^\circ\text{C} \\
8 &= -200 \, ^\circ\text{C} \text{ to } +850 \, ^\circ\text{C} \\
10 &= -70 \, ^\circ\text{C} \text{ to } +1000 \, ^\circ\text{C}
\end{align*}
\]

Connections

\[
\begin{align*}
S &= \text{SIL} \\
I &= \text{insulated wire} \\
K &= \text{customer specific} \\
W &= \text{wire} \\
FW &= \text{flat wire}
\end{align*}
\]

FK = flat wire customer-specific

SW = perpendicular wire

L = insulate stranded wire

E = enameled Cu-wire

Tolerance class

\[
\begin{align*}
A &= \text{IEC 60751 F0.15} \\
K &= \text{customer specific} \\
B &= \text{IEC 60751 F0.3} \\
P &= \text{pair} \\
C &= \text{IEC 60751 F0.6} \\
G &= \text{group} \\
Y &= \text{IEC 60751 F0.1}
\end{align*}
\]

Wire length in mm

Special

\[
\begin{align*}
T &= \text{substrate thickness 0.25 mm} \\
D &= \text{substrate thickness 0.38 mm} \\
R &= \text{round housing} \\
W &= \text{sintered powder}
\end{align*}
\]

Metallized backside

Inverted welding

Special