Overview

Install miniature sensors in or beneath the babbitt layer of bearing shoes. They monitor metal temperature — the most reliable indicator of bearing condition — to give early warning of oil film breakdown. Machines can then be shut down and the problem corrected before catastrophic failure occurs.

While no larger than many bare ceramic elements, these RTDs have metal cases and insulated leads to withstand rough handling and harsh environments. They are easy to install in drilled holes for general purpose sensing.

Specifications

Temperature range: -50 to 260°C (-58 to 500°F).


Babbitt tip: Factory applied babbitt tip, available on case style A or B, reduces the danger of overheating the sensor when installed in babbitt layer.

Leads: Stranded copper with PTFE insulation; stainless steel overbraid optional (one sleeve covers all leads). Polyimide insulation available on selected models (See specification and order options).

Time constant: 3.0 seconds (case style A) to 1.5 seconds (case style D), typical value in moving water.

Insulation resistance: 10 megohms min. at 100 VDC, leads to case.

*MIL-T-24388C qualified models:


Specifications subject to change.

Embedment RTDs

<table>
<thead>
<tr>
<th>Element</th>
<th>TCR</th>
<th>Case style A</th>
<th>Case style B</th>
<th>Case style C</th>
<th>Case style D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ω/°C</td>
<td>Single</td>
<td>Dual</td>
<td>Single</td>
<td>Dual</td>
</tr>
<tr>
<td>Platinum, 100</td>
<td>±0.36% at 0°C</td>
<td>0.00392</td>
<td>S325PA</td>
<td>S4026PA</td>
<td>S313PA</td>
</tr>
<tr>
<td>Platinum, 100</td>
<td>±0.12% at 0°C</td>
<td>0.00385</td>
<td>S304PD</td>
<td>S309PD</td>
<td>S306PD</td>
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<tr>
<td>Platinum, 1000</td>
<td>±0.36% at 0°C</td>
<td>0.00385</td>
<td>S7304PE</td>
<td>S305PE</td>
<td>S7746PE</td>
</tr>
<tr>
<td>Copper, 10</td>
<td>±0.2% at 25°C</td>
<td>0.00427</td>
<td>S324CA</td>
<td>S4026CA</td>
<td>S332CA</td>
</tr>
<tr>
<td>Nickel, 120</td>
<td>±0.5% at 0°C</td>
<td>0.00672</td>
<td>S326NA</td>
<td>S4026NA</td>
<td>S330NA</td>
</tr>
</tbody>
</table>

*MIL-T-24388C qualified models:


Specimen and order options

<table>
<thead>
<tr>
<th>S331PA</th>
<th>Model number from table</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Number of leads per sensing element (2, 3, or 4): CA or PD elements not available with 2 leads. 4 leads available on single elements and S14405 only.</td>
</tr>
<tr>
<td>S</td>
<td>Covering over leadwires: T = PTFE insulated leads only S = Stainless steel overbraid with PTFE insulated leads F = FEP over PTFE insulated leads R = FEP over stainless steel braid and PTFE insulated leads. E = FEP over stainless steel braid, with elastomer fill and PTFE insulated leads. (max fill length 240&quot;)</td>
</tr>
<tr>
<td>36</td>
<td>Lead length in inches</td>
</tr>
</tbody>
</table>

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Installation and Accessories

Case style A
Install case style A sensor just below the babbitt layer, then puddle the babbitt metal over the sensor tip and smooth. Read Engineering Instruction #164 and Engineering Instruction #167 for complete details.

Case style B
The “top hat” flange shape allows spring loading with the AC171 spring and AC172 or AC915 retaining ring (order separately). Choose the economical AC172 style for lowest cost. The AC915 style allows removal and reinstallation. Slide the spring and ring over the leads, insert the sensor tip into a milled hole, and push down on the retaining ring to compress the spring and secure the sensor. Read Engineering Instruction #180 and Engineering Instruction #181.

Case styles C and D
Pot with epoxy inside small bearing shoes. Locate near the babbitt face for best readings. Read Engineering Instruction #184.

AC171 spring for case style B
Stainless steel. Outside diameter 0.240” (6.1 mm). Compressed length 0.22” (5.6 mm). To be used in conjunction with AC172 or AC915 for spring loading case style B

Feedthroughs
Feedthroughs provide an oil tight seal where a cable exits a machine housing. The stainless steel tube is epoxy filled and each wire is sealed to the individual conductor. This prevents wicking of oil inside the wires as well as leakage around the wire insulation. Pressure rating to 25 psi (1.7 bar). See page 4-12 for more information.

AC172 and AC915 retaining ring for case style B

<table>
<thead>
<tr>
<th>Model</th>
<th>&quot;A&quot; diameter</th>
<th>Hole I.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC172</td>
<td>sized to fit leadwires</td>
<td>0.312” (7.92 mm)</td>
</tr>
<tr>
<td>AC172-3</td>
<td>0.175” (4.45 mm)</td>
<td>0.375” (9.53 mm)</td>
</tr>
<tr>
<td>AC915-1</td>
<td>0.213” (5.4 mm)</td>
<td>0.312” (7.92 mm)</td>
</tr>
</tbody>
</table>

AC190 terminal block

AC191 terminal block

AC192 terminal block
Three tin-plated brass terminals. Glass-filled PTFE body.

AC195 terminal block
Same as AC192 except polyamide-imide body for radiation resistance to 10⁹ rads.

AC197 terminal block
Three tin-plated brass terminals. Glass-filled PTFE body.

AC196 terminal block
Same as AC197 except polyamide-imide body for radiation resistance to 10⁹ rads.