The nVent RAYCHEM RTD3CS and RTD10CS are three-wire platinum RTD (resistance temperature detectors) typically used with monitoring and control systems, such as our nVent RAYCHEM 910 controller, when accurate temperature control is required.

The RTD3CS and RTD10CS can be installed directly to the controller using the supplied ½ inch conduit fitting or to an RTD junction box where RTD extension wire is used.

**TOOLS REQUIRED**
- 3.5-mm flat-blade screwdriver

**ADDITIONAL MATERIALS REQUIRED**
- AT-180 aluminum tape

**KIT CONTENTS**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RTD temperature sensor</td>
</tr>
</tbody>
</table>

**Extension Wires**

<table>
<thead>
<tr>
<th>Wire size (each of 3)</th>
<th>20 AWG, stranded tinned copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire insulation rating</td>
<td>300 volts</td>
</tr>
<tr>
<td>Length</td>
<td></td>
</tr>
<tr>
<td><strong>RTD3CS</strong>: 3 ft (.3 m) flexible armor, 18 in (457 mm) lead wire</td>
<td></td>
</tr>
<tr>
<td><strong>RTD10CS</strong>: 10 feet (3 m) flexible armor, 18 in (457 mm) lead wire</td>
<td></td>
</tr>
<tr>
<td>Outer shield</td>
<td>Stainless steel flexible armor</td>
</tr>
<tr>
<td>Maximum exposure</td>
<td>400°F (204°C)</td>
</tr>
<tr>
<td>Conduit bushing</td>
<td>½ in NPT</td>
</tr>
</tbody>
</table>

**WARNING:**
This component is an electrical device. It must be installed correctly to ensure proper operation and to prevent shock or fire. Read these important warnings and carefully follow all the installation instructions. Component approvals and performance are based on the use of specified parts only. Do not use substitute parts or vinyl electrical tape to make connections.
**POSITIONING THE SENSOR**

Position the RTD sensor in the lower quadrant of the pipe as shown in the diagram. Place the RTD sensor at least 3 feet (1 m) from pipe supports, valves, or other heat sinks. Tape the RTD firmly to the pipe with nVent RAYCHEM AT-180 aluminum tape, making sure there is no air space between the RTD and the pipe. Do not use the same piece of AT-180 tape to overlap the RTD and heat-trace cable.

**INSTALLATION WITH HEATING CABLE**

**Electrical Wiring Guidelines:**
Most electrical codes (such as NEC 725.15) permit Class 1 circuits to occupy the same cable, enclosure, or raceway without regard to whether the individual circuits are alternating current or direct current, providing all conductors are insulated for the maximum voltage of any conductors in the cable, enclosure or raceway.

**Additional Materials Required**
- JBS-100-A or other power connection kit
- Pipe straps

**RTD DIRECT CONNECTION TO CONTROLLER**

(Distance from sensor bulb to controller must be less than 10 feet)

The RTD3CS and RTD10CS can be terminated directly at the controller using the supplied 1/2 inch NPT fitting. In this configuration, no additional extension wire is required.

**RTD DIRECT CONNECTION TO CONTROLLER**

(Distance from sensor bulb to controller greater than 3 feet for the RTD3CS and 10 feet for the RTD10CS)

Connect the wires as shown.

Note: Ground RTD extension wire shield at one end only, preferably at RAYCHEM electronics end.

**North America**
Tel +1.800.545.6258  
Fax +1.800.527.5703  
thermal.info@nvent.com

**Europe, Middle East, Africa**
Tel +32.16.213.511  
Fax +32.16.213.604  
thermal.info@nvent.com

**Asia Pacific**
Tel +86.21.2412.1688  
Fax +86.21.5426.3167  
cn.thermal.info@nvent.com

**Latin America**
Tel +1.713.868.4800  
Fax +1.713.868.2333  
thermal.info@nvent.com

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nVent reserves the right to change specifications without notice.

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