SIRIUS 3RN2 thermistor motor protection relays directly monitor a motor’s winding temperature and thus ensure reliable protection against overheating. Under atypical conditions, such as heavy starting or inadequate cooling, a motor is at extreme risk of overheating, even if fitted with overload relays.

With SIRIUS 3RN2, you can rest assured that production systems will be monitored reliably, even under difficult conditions. SIRIUS 3RN2 thermistor motor protection relays are the ideal choice, even for hazardous areas, because they are also available with ATEX approval.

**Reliable overheating protection for motors**
- Direct measurement of motor winding temperature
- Trip threshold defined by motor manufacturer: no special motor knowledge (e.g. max. permissible temperature) required, tripping via standardized PTC sensor
- No need for parameterization
- No errors possible during commissioning

**Also ideal for hazardous areas**
- Meets SIL 1 in accordance with EN 50495
- For environments at risk of dust or gas explosion
- Permanent self-diagnostics and monitoring of sensor circuits

**Space-saving, uniform enclosure concept**
- New enclosure design in titanium gray
- Width of just 22.5 or 17.5 mm for more space in the control cabinet
- Wide-range supply voltage reduces device variance

**Easy to handle**
- Permanent wiring thanks to removable terminals
- Maintenance-free spring-type terminals, even with vibrations
- Alternatively: traditional screw terminals
- Easy bridging of ground potential from one unit to another (double A2 terminals)

**Low-cost versions**
- Suitable for bimetallic sensors as an inexpensive alternative to high-cost units
Reliable protection: temperature measured directly in the motor winding

The temperature is monitored by means of thermistor sensors selected by the motor manufacturer as a function of the maximum permissible motor temperature. Sensors are installed directly in the motor winding.

If the selected PTC sensors’ rated response temperature is reached, the resistance increases abruptly by several orders of magnitude and the thermistor motor protection relay switches its outputs off. This reliably protects the motor from overheating.

### Thermistors (PTCs) in three-phase motors

<table>
<thead>
<tr>
<th>Motor</th>
<th>PTC temperature sensors (1 sensor per phase)</th>
</tr>
</thead>
<tbody>
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<td></td>
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</table>

### Design

<table>
<thead>
<tr>
<th>Design</th>
<th>RESET option</th>
<th>Contacts</th>
<th>Rated control supply voltage Us</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact signal evaluation units, width 17.5 mm, suitable for bimetallic switches</td>
<td>Auto</td>
<td>1 CO</td>
<td>24 V AC/DC 24–240 V AC/DC</td>
<td>3RN2000-AA30</td>
</tr>
<tr>
<td>Terminal A1 jumpered with root of CO contact</td>
<td>Auto</td>
<td>1 NO + 1 NC</td>
<td>24 V AC/DC 24–240 V AC/DC</td>
<td>3RN2000-AW30</td>
</tr>
<tr>
<td>Standard evaluation units, width 22.5 mm, suitable for bimetallic switches</td>
<td>Auto</td>
<td>2 CO</td>
<td>24 V AC/DC 24–240 V AC/DC</td>
<td>3RN2010-BA30</td>
</tr>
<tr>
<td>Bistable evaluation units, width 22.5 mm, wire break and short-circuit detection in the sensor circuit</td>
<td>Auto</td>
<td>2 CO</td>
<td>24–240 V AC/DC</td>
<td>3RN2012-BW31</td>
</tr>
<tr>
<td>Standard evaluation units with ATEX approval, width 22.5 mm, wire break and short-circuit detection in both sensor circuits</td>
<td>Manual/Auto/Remote</td>
<td>2 CO</td>
<td>24 V AC/DC 24–240 V AC/DC</td>
<td>3RN2011-BA30</td>
</tr>
<tr>
<td>Safe galvanic isolation of all circuits, non-volatile</td>
<td>Manual/Auto/Remote</td>
<td>2 CO</td>
<td>24 V AC/DC 24–240 V AC/DC</td>
<td>3RN2013-BA30</td>
</tr>
<tr>
<td>Safe galvanic isolation of all circuits, non-volatile</td>
<td>Manual/Auto/Remote</td>
<td>2 CO</td>
<td>24–240 V AC/DC</td>
<td>3RN2013-BW30</td>
</tr>
<tr>
<td>Safe galvanic isolation of all circuits, non-volatile</td>
<td>Manual/Auto/Remote</td>
<td>1 NO + 1 CO</td>
<td>24–240 V AC/DC</td>
<td>3RN2023-DW30</td>
</tr>
</tbody>
</table>

1) Protective separation up to 300 V acc. to VDE 0106, IEC 60947-1
2) For notes regarding protection against voltage failure, see Catalog IC 10
3) Resetting via RESET button or by interrupting the control supply voltage

You will find further details in the Mall
http://www.siemens.com/sirius-2m2

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