SPS secondary process
seal assemblies

Applications:
The secondary process seal assembly with rupture indication sensor is designed to prevent the passage of gases under pressure through conduit, cables and conductors, while providing immediate notification of a dangerous, potentially explosive seal rupture. These assemblies are ideal where volatile liquids or gases are stored, processed or transported under pressure. If the primary seal in an instrument should fail, the secondary process seal will prevent gases, vapors and liquids from migrating into the non-classified location through the electrical system.

Rupture indication sensor:
The secondary process seal features a rupture indication sensor that opens safely at 60 PSI minimum and activates a circuit to a control system or alarm, which immediately alerts maintenance personnel that the primary seal has ruptured. The location of the problem can be pinpointed so the problem can be quickly addressed.

Innovative, intelligent technology, combined with easy installation and low maintenance cost, provides a safe and reliable solution for detection of a process seal rupture within your facility.

Features:
Secondary process seal:
- CSA and CSAus certified
- Meets or exceeds ANSI / ISA / CSA / CEC / NEC / API requirements for a secondary process seal and explosionproof conduit seal
- Sealed to 1500 PSI; operates in any position
- Simplified design allows for easier installation in new and existing applications
- Integrated packaging contains all necessary components for installation
- Explosionproof drain allows for the safe release of gas, vapor or liquid from the electrical system to meet required codes
- Explosionproof terminal box features a simple design to provide access for quick connection of circuits
- Assembly with drain provides local “make obvious” indication of primary seal failure

Rupture indication sensor:
- Rupture detection and indication at 60 PSI
- Provides remote, immediate notification of a seal rupture, allowing for maintenance to quickly address the problem and isolate safety concerns
- Stainless steel construction provides superior corrosion resistance and durability

Options:
- No terminal blocks .............................................BLANK
- 2 terminal blocks .............................................DIN12
- 4 terminal blocks .............................................DIN14

Ordering information:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cat. # Assembly with vent / drain</th>
<th>Cat. # Assembly with rupture indication sensor and vent / drain</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire, 14 gauge</td>
<td>SPS214</td>
<td>SPS214R</td>
</tr>
<tr>
<td>2-wire, 16 gauge</td>
<td>SPS216</td>
<td>SPS216R</td>
</tr>
<tr>
<td>2-wire, 18 gauge</td>
<td>SPS218</td>
<td>SPS218R</td>
</tr>
<tr>
<td>2-wire, 22 gauge</td>
<td>SPS222</td>
<td>SPS222R</td>
</tr>
<tr>
<td>4-wire, 14 gauge</td>
<td>SPS414</td>
<td>SPS414R</td>
</tr>
<tr>
<td>4-wire, 16 gauge</td>
<td>SPS416</td>
<td>SPS416R</td>
</tr>
<tr>
<td>4-wire, 18 gauge</td>
<td>SPS418</td>
<td>SPS418R</td>
</tr>
<tr>
<td>4-wire, 22 gauge</td>
<td>SPS422</td>
<td>SPS422R</td>
</tr>
</tbody>
</table>

Note: For process seal rupture indication sensor replacement, order catalog number PSRIS.
**SPS secondary process seal assemblies**

Cl. I, Div. 1 & 2, Groups B, C, D  
Cl. I, Zones 1 & 2, IIB + H₂  
Cl. II, Div. 1 & 2, Groups E, F, G  
NEMA 3, 4, 7BCD, 9

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**Ordering information:**

**Part number example**  
SPS414RUDIN14

<table>
<thead>
<tr>
<th>SPS</th>
<th>414</th>
<th>R</th>
<th>U</th>
<th>DIN14</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ultra high pressure seal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>214</td>
<td>14G UHPS, 2 wire, 14 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>216</td>
<td>16G UHPS, 2 wire, 16 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>218</td>
<td>18G UHPS, 2 wire, 18 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>222</td>
<td>22G UHPS, 2 wire, 22 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>414</td>
<td>14G UHPS, 4 wire, 14 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>416</td>
<td>16G UHPS, 4 wire, 16 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>418</td>
<td>18G UHPS, 4 wire, 18 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>422</td>
<td>22G UHPS, 4 wire, 22 gauge</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Optional primary seal rupture indication**  
R  
Rupture indication with PSRIS

**Optional union**  
U  
UNY105 union

**Optional DIN rail mounted terminal strip**  
DIN12  
DIN12 terminal strip (two DIN rail mounted terminals, 2 wire only)

DIN14  
DIN14 terminal strip (four DIN rail mounted terminals, 4 wire only)
Assembly information:
(Assembly with process seal rupture indication sensor)

**Terminal Housing**
- Cast ears on cover permit easy opening and tightening
- Neoprene o-ring meets NEMA 4 requirements
- Compact, explosionproof design
- Various termination methods available
- DIN rail mounted terminal blocks provided as option

**Ultra High Pressure Seal (UHPS) (available separately)**
- Rated to 1500 PSI
- 2 or 4 wire versions available
- Conductors available in 14, 16, 18, and 22 gauge
- Two foot pigtail leads
- Additional conduit seal not required

**Process Seal Rupture Indication Sensor (PSRIS) (available separately)**
- Switch is activated (open) when the primary seal is ruptured, by Hall Effect (magnetic)
- Switch activates at internal pressure of 60 psi or higher
- Must be wired as intrinsically safe (Div. 1, Zone 1) or non-incendive (Div. 2, Zone 2)
- 2 meter silicon cable

**Explosionproof Vent / Drain**
- Patented labyrinth design
- NEMA 4 rated

**Installation Example**
- Explosionproof seal not required if process device or sensor is labeled “factory-sealed” or “seal not required”

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60 PSI internal pressure rating at 25°C ambient. Activation pressure may vary +/- 10% depending on ambient variation.
SRS secondary process
seal assemblies

Installation examples:

Secondary process seal with local “make obvious” indication using an ECD explosionproof drain

Secondary process seal with rupture indication sensor for remote indication, and ECD explosionproof drain for local “make obvious” indication

Technical data – assembly:

Product certification:

- The secondary process seal and assemblies are CSA certified (Canada, U.S.)

Operating pressure rating:

- Rupture protection to 1500 PSI
- Rupture indication at 60 PSI minimum

Operating temperature range:

- -25ºC to +50ºC

Note: For application specific questions on operating pressure and temperature, please contact factory.

Technical data – components:

<table>
<thead>
<tr>
<th>Components</th>
<th>Construction</th>
<th>Certifications and compliances</th>
<th>Rating</th>
<th>Area suitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process seal rupture indication sensor</td>
<td>Switch assembly – hermetically sealed, nickled brass, with silicon cable</td>
<td>(Div. 1, Zone 1) Intrinsically Safe (Div. 2, Zone 2) Non-incendive Simple Apparatus (NEC 504.4)</td>
<td>174 mA</td>
<td>Cl. I, Div. 1 &amp; 2, Groups B, C, D Cl. II, Div. 1 &amp; 2, Groups E, F, G Zones 1 &amp; 2, IIB + H2</td>
</tr>
<tr>
<td>Ultra high pressure seal</td>
<td>Stainless steel</td>
<td>CSA 22.2 No. 30 - 03 CSA 22.2 No. 14 - 2005 ANSI / ISA 12.27.01 - 2003 CEC 18 - 108, 158 NEC 501.15(F)(3)</td>
<td>24 VDC; 120 VAC</td>
<td>NEMA 3, 4, 7BCD, 9</td>
</tr>
<tr>
<td>Terminal housing</td>
<td>Copper-free aluminum</td>
<td>UL1203 CSA C22.2 No. 30</td>
<td>24 VDC</td>
<td></td>
</tr>
<tr>
<td>Drain/vent</td>
<td>Stainless steel</td>
<td>UL1203 CSA C22.2 No. 30</td>
<td>24 VDC</td>
<td></td>
</tr>
</tbody>
</table>
SPS secondary process seal assemblies

Dimensions (in inches):

Assembly with rupture sensor and vent/drain

Note: Assemblies shown with DIN12 terminal blocks (optional).

Assembly with vent/drain

Cl. I, Div. 1 & 2, Groups B, C, D
Cl. I, Zones 1 & 2, IIB + H₂
Cl. II, Div. 1 & 2, Groups E, F, G
NEMA 3, 4, 7BCD, 9