Level Measurement

Point level measurement
Rotation paddle switches

SITRANS LPS200

Overview

SITRANS LPS200 is a rotary paddle switch for point level and material detection in bulk solids.

Benefits

- Proven paddle switch technology for bulk solids
- High integrity mechanical seal
- Universal power supply options available
- Unique friction clutch mechanism prevents damage from falling material
- Rotatable enclosure for convenient wiring
- Optional paddles for use with low density materials
- Small paddle makes for simple installation through existing process connection
- High temperature model and optional extension kit available
- Optional fail-safe configuration detects loss of rotation
- Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511

Application

The paddle switch technology detects full, empty, or demand conditions on materials such as grain, feed, cement, plastic granulate, and wood chips. The paddle switch can handle bulk densities as low as 15.06 g/l (0.94 lb/ft³) with the optional rectangular vane or 100 g/l (6.25 lb/ft³) with the standard measuring vane.

A low revolution geared motor with slip clutch drives a rotating measuring vane which senses the presence of material at the mounted level of the LPS200. As material comes into contact with the rotating paddle, rotation stops, which changes the microswitch state. When the paddle is no longer covered by material, rotation resumes and the relay reverts to its normal condition.

The LPS200 has a rugged design for use in harsh conditions in the solids industry. The sensitivity of the paddle can be adjusted for varying material properties like buildup on the vane. The LPS200 comes in a variety of configurations including compact, extended and cable extension. It is equipped with a standard vane which is effective in most applications, but can be configured with a hinged or rectangular vane for increased sensitivity for light materials.

- Key Applications: bulk solids such as grain, feed, cement, plastic granulate, wood chips

Technical specifications

Mode of operation

<table>
<thead>
<tr>
<th>Measuring principle</th>
<th>Rotating point level switch</th>
</tr>
</thead>
</table>

Input

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>High and low and demand</th>
</tr>
</thead>
</table>

Output

<table>
<thead>
<tr>
<th>Output signal</th>
<th>Alarm output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microswitch 5 A at 250 V AC, non-inductive</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pickup delay</th>
<th>Standard (1 rpm model): approx. 1.3 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional process applications (5 rpm model): approx. 0.26 seconds</td>
<td></td>
</tr>
</tbody>
</table>

Sensitivity

Adjustable via reset force of spring or geometry of measuring vane

Rated operating conditions

<table>
<thead>
<tr>
<th>Installation conditions</th>
<th>Indoor/outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25 ... +60 °C (-13 ... +140 °F)</td>
</tr>
<tr>
<td>Installation category</td>
<td>III</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
<tr>
<td>Medium conditions</td>
<td>Bulk solids</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>- Standard</td>
<td>-25 ... +80 °C (-13 ... +176 °F)</td>
</tr>
<tr>
<td>- Optional</td>
<td>-25 ... +600 °C (-13 ... +1112 °F)</td>
</tr>
<tr>
<td>Pressure (vessel)</td>
<td>Max. 0.5 bar g (7.25 psi g)</td>
</tr>
<tr>
<td>- Standard</td>
<td>Max. 10 bar g (145 psi g)</td>
</tr>
<tr>
<td>- Optional</td>
<td>Can detect down to 100 g/l (6.25 lb/ft³)</td>
</tr>
<tr>
<td>Minimum material density</td>
<td>Can detect down to 15.06 g/l (0.94 lb/ft³)</td>
</tr>
</tbody>
</table>

Design

<table>
<thead>
<tr>
<th>Material</th>
<th>Epoxy coated aluminum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enclosure</td>
<td>Stainless steel or aluminum</td>
</tr>
<tr>
<td>Process connection, measuring shaft and vane</td>
<td>Thread NPT, BSP, and flange options</td>
</tr>
<tr>
<td>Process connection</td>
<td>IP65/Type 4/NEMA 4</td>
</tr>
<tr>
<td>Degree of protection</td>
<td></td>
</tr>
<tr>
<td>Conduit entry</td>
<td>2 x M20 x 1.5 or 2 x ½&quot; NPT (For FM and CSA approved versions only.)</td>
</tr>
</tbody>
</table>

Power supply

| AC or DC versions      | 115 V AC, ± 15 %, 50 ... 60 Hz, 4 VA or 230 V AC, ± 15 %, 50 Hz, 6 VA, 48 V AC, or 24 V AC, 24 V DC, ± 15 %, 2.5 W |
| Universal voltage (DPDT replay) | 24 V DC ± 15 % 50 ... 60 Hz, 22 ... 230 V AC, ± 10 %, max. 10 VA |

Certificates and approvals

- CSA/FM General Purpose
- CE
- CSA/FM Dust Ignition Proof
- ATEX II 1/2 D
- RCM
- IECEx
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS LPS200, compact</td>
<td>7ML5725-0</td>
</tr>
</tbody>
</table>

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

### Process temperature
- Up to 80 °C (176 °F)
- Up to 150 °C (302 °F)
- Up to 250 °C (482 °F)
- Up to 600 °C (1112 °F)\(^1\)\(^2\)
- Up to 80 °C (176 °F) basic version aluminum\(^3\)
- Up to 80 °C (176 °F) basic version stainless steel\(^4\)

### Power supply
- 230 V AC, 1 rev/min.\(^5\)\(^6\)
- 230 V AC, 5 rev/min.\(^5\)\(^6\)
- 115 V AC, 1 rev/min.\(^5\)\(^6\)
- 115 V AC, 5 rev/min.\(^5\)\(^6\)
- 48 V AC, 1 rev/min.\(^5\)\(^6\)
- 24 V AC, 1 rev/min.\(^5\)\(^6\)
- 24 V DC, 1 rev/min.\(^5\)\(^6\)
- 24 V DC, 5 rev/min.\(^5\)\(^6\)
- 48 V AC, 5 rev/min.\(^5\)\(^6\)
- 24 V AC, 5 rev/min.\(^5\)\(^6\)
- Universal Voltage, 1 rev/min.\(^5\)\(^6\)
- Universal Voltage, 1 rev/min., fail-safe\(^5\)\(^6\)
- Universal Voltage, 5 rev/min.\(^5\)\(^6\)
- Universal Voltage, 5 rev/min., fail-safe\(^5\)\(^6\)

### Process connection
- Threaded\(^7\)
  - G 11/4 [(BSPP), EN ISO 228-1]
  - G 1 [(BSPP), EN ISO 228-1]
  - G 1 1/2 [(BSPP), EN ISO 228-1]
  - 1" NPT [(Taper), ANSI/ASME B1.20.1]
  - 1 1/4" NPT [(Taper), ANSI/ASME B1.20.1]
  - 1 1/2" NPT [(Taper), ANSI/ASME B1.20.1]
- Flanged\(^8\)
  - DN 32 PN 6, EN 1092-1, flat face\(^9\)
  - DN 100 PN 6, EN 1092-1, flat face\(^9\)
  - DN 100 PN 16, EN 1092-1, flat face\(^9\)
  - 2" ASME 150 lb B16.5, raised face\(^9\)
  - 3" ASME 150 lb B16.5, raised face\(^9\)
  - 4" ASME 150 lb B16.5, raised face\(^9\)
  - 2" Tri-clamp (DN 50) ISO 2856\(^9\)

### Measuring vane
- Boot shaped, 35 x 106 mm (1.38 x 4.17 inch)\(^10\)
- Boot shaped, 65 x 200 mm (2.56 x 7.87 inch)\(^10\)\(^11\)
- Boot shaped, 28 x 98 mm (1.10 x 3.86 inch)\(^12\)
- Rectangular, 50 x 150 mm (1.97 x 5.91 inch)\(^10\)\(^11\)
- Rectangular, 50 x 250 mm (1.97 x 9.84 inch)\(^12\)
- Rectangular, 98 x 150 mm (3.86 x 5.91 inch)\(^11\)\(^12\)
- Rectangular, 98 x 250 mm (3.86 x 9.84 inch)\(^11\)\(^12\)
- Rectangular, 98 x 98 mm (1.97 x 3.86 inch)\(^12\)

### Approvals
- CSA/FM Dust Ignition Proof, RCM
- ATEX II 1/2 D, RCM
- CSA/FM General Purpose, RCM, CE
- CE, RCM
- IEC Ex ta/tb IIIC
- EAC Ex ta/tb IIIC Da/Db
Level Measurement
Point level measurement
Rotation paddle switches

**SITRANS LPS200**

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5725-5EE11-2AC0</td>
<td>SITRANS LPS200, compact for up to 80 °C (176 °F), aluminum, with power supply E, process connection E, process pressure 1, process connection material 1, extension length 2, measuring vane A, and approval C</td>
</tr>
<tr>
<td>7ML5725-6ZC12-2AB0 J2A</td>
<td>SITRANS LPS200, compact for up to 80 °C (176 °F), stainless steel, with power supply Z (J2A), process connection C, process pressure 1, process connection material 2, extension length 2, measuring vane A, and approval B</td>
</tr>
<tr>
<td>7ML5725-6ZE12-2AA0 J2A</td>
<td>SITRANS LPS200, compact for up to 80 °C (176 °F), stainless steel, with power supply Z (J2A), process connection E, process pressure 1, process connection material 2, extension length 2, measuring vane A, and approval A</td>
</tr>
</tbody>
</table>

### Operating Instructions

**Multi-language**

Note: The Operating Instructions should be ordered as a separate line on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

### Spare Parts

**Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)**

7ML1830-1KH

**Hinged vane, 98 x 200 mm (3.86 x 7.87 inch)**

7ML1830-1KJ

**Rigid extension kit**

(Includes spring coupling, rigid tube extension, and required pins)

**Extension: 500, 400, 300 mm (19.7, 15.8, 11.8 inch)**

7ML5711-0AA

**Extension: 1 000, 900, 800, 700, 600 mm (39.4, 35.4, 31.5, 27.6, 23.6 inch)**

7ML5711-1AA

**Extension: 1 500, 1 400, 1 300, 1 200, 1 100 mm (59.1, 55.1, 51.2, 47.2, 43.3 inch)**

7ML5711-2AA

**Rope extension kit, 2 m (6.56 ft)**

7ML1830-1KK

### Further Designs

**Heating of enclosure**

Available with approval options C and D only, up to 0.5 bar.

**Signal bulb inserted in M20 cable gland**

Not available with process connections A, B, D, E, and G.

**Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing**

Only available with the following configurations 7ML5725-6ZC12-2AB0 J2A or 7ML5725-6ZE12-2AA0 J2A.

**Stainless steel tag [100 x 45 mm (3.94 x 1.77 inch)]**

Available with process connection options A, B, C, D, E, F, H ... N and measuring vane A only.

**Functional Safety (SIL 2) Device suitable for use in accordance with IEC 61508 and IEC 61511**

Available with process connection options A, B, C, D, E, F, H ... N and measuring vane A and B.

**Factory test certificate - M to DIN 55350, Part 18**

Available with process connection options H ... M only.

**Available with approval option D only.**

**Available with power supply options A, C, E, G, J, K, L, N, J1B, J1D, J1E, J2A, J2C only.**

**Available up to 250 °C (482 °F). This option does not automatically implement a food conform design.**

**Pendulum shaft 500 mm/1 000 mm/1 500 mm should be selected with 150 mm standard length 2 and vane A (35 x 106) to get to the desired lengths.**

**Available with Power supply options J2A and J2C only.**

**Available with Approval options A, B, C, D, and E only. Approvals A and C with FM only.**

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Level Measurement
Point level measurement
Rotation paddle switches

SITRANS LPS200

Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML5726-</td>
<td></td>
</tr>
</tbody>
</table>

SITRANS LPS200, shaft protected
Rotary paddle switch for level and material detection in bulk solids; ideal for heavy, sticky, or high impact applications. Designed with added protection tube for enhanced shaft protection and protection against buildup on shaft (sidewall buildup).

Process temperature
- Up to 80 °C (176 °F)
- Up to 150 °C (302 °F)
- Up to 250 °C (482 °F)
- Up to 600 °C (1,112 °F)
- Up to 80 °C (176 °F) basic version

Power supply
- 230 V AC, 1 rev/min.
- 230 V AC, 5 rev/min.
- 115 V AC, 1 rev/min.
- 115 V AC, 5 rev/min.
- 48 V AC, 1 rev/min.
- 24 V AC, 1 rev/min.
- 24 V DC, 1 rev/min.
- 24 V DC, 5 rev/min.
- 48 V AC, 5 rev/min.
- 24 V AC, 5 rev/min.
- Universal Voltage, 1 rev/min.
- Universal Voltage, 1 rev/min., fail-safe
- Universal Voltage, 5 rev/min.
- Universal Voltage, 5 rev/min., fail-safe

Process connection
- Threaded
  - G 1¼” [(BSPP), EN ISO 228-1]
  - G 1½” [(BSPP), EN ISO 228-1]
  - 1¼” NPT [(Taper), ANSI/ASME B1.20.1]
  - 1½” NPT [(Taper), ANSI/ASME B1.20.1]
- Flanged
  - DN 32 PN 6, EN 1092-1, flat face
  - DN 100 PN 6, EN 1092-1, flat face
  - DN 100 PN 16, EN 1092-1, flat face
  - 2” ASME 150 lb B16.5, raised face
  - 3” ASME 150 lb B16.5, raised face
  - 4” ASME 150 lb B16.5, raised face
  - 2” Tri-clamp (DN 50) ISO 2852

Process pressure
- Up to 0.5 bar (7.25 psi)
- Up to 5 bar (72.5 psi)
- Up to 10 bar (145 psi)

Process connection material
- Aluminum
- Stainless steel, threads 303 (1.4305), flanges 321 (1.4541), Tri-clamp 304 (1.4301)
- Stainless steel 316L (1.4404)

Extension length
- 150 mm (5.91 inch)
- 200 mm (7.87 inch)
- 250 mm (9.84 inch)
- 300 mm (11.81 inch)

Extension material (protection tube)
- Aluminum
- Stainless steel 303 (1.4305)
- Stainless steel 316L (1.4404)

Measuring vane
- Boot shaped, 35 x 106 mm
- Hinged vane, 65 x 200 mm
- Rectangular, 50 x 150 mm
- Rectangular, 50 x 250 mm
- Rectangular, 50 x 300 mm
- Rectangular, 98 x 150 mm
- Rectangular, 98 x 250 mm
- Rectangular, 98 x 300 mm

Approvals
- CSA/FM Dust Ignition Proof, RCM
- ATEX II 1/2 D, RCM
- CSA/FM General Purpose, RCM, CE
- CE, RCM
- IEC Ex ta/tb IIIC
- EAC Ex ta/tb IIIC Da/Db

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.
## Selection and Ordering data

### Further Designs
- Heating of enclosure \(^{14}(15)\)
- Signal bulb inserted in M20 cable gland \(^{14}\)
- Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing \(^{14}\)
- Stainless steel tag \([100 \times 45 \text{ mm} (3.94 \times 1.77 \text{ inch})]\): Measuring-point number/identification (max. 27 characters); specify in plain text
- Functional Safety (SIL 2): Device suitable for use in accordance with IEC 61508 and IEC 61511. \(^{17}(19)\)
- Factory test certificate - M to DIN 55350, Part 18

### Operating Instructions
- Multi-language
  - Note: The Operating Instructions should be ordered as a separate line on the order.
  - All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

### Spare Parts
- Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)
  - Hinged vane, 98 x 200 mm (3.86 x 7.87 inch)
  - SITRANS LPS200, extended for up to 80 °C (176 °F), power supply Z (J2A), process connection material 2, extension length 2, extension material B, measuring vane A, and approval 2
  - SITRANS LPS200, extended for up to 80 °C (176 °F), power supply Z (J2A), process connection material 2, extension length 2, extension material B, measuring vane A, and approval 1

### Order code

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating of enclosure (^{14}(15))</td>
<td>A35</td>
</tr>
<tr>
<td>Signal bulb inserted in M20 cable gland (^{14})</td>
<td>A20</td>
</tr>
<tr>
<td>Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing (^{14})</td>
<td>K01</td>
</tr>
<tr>
<td>Stainless steel tag ([100 \times 45 \text{ mm} (3.94 \times 1.77 \text{ inch})]): Measuring-point number/identification (max. 27 characters); specify in plain text</td>
<td>Y14</td>
</tr>
<tr>
<td>Functional Safety (SIL 2): Device suitable for use in accordance with IEC 61508 and IEC 61511. (^{17}(19))</td>
<td>C20</td>
</tr>
<tr>
<td>Factory test certificate - M to DIN 55350, Part 18</td>
<td>C11</td>
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### Article No.

<table>
<thead>
<tr>
<th>Operating Instructions</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-language</td>
<td>A5E34210883</td>
</tr>
</tbody>
</table>

### Note:
The Operating Instructions should be ordered as a separate line on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

### Spare Parts

- Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)
- Hinged vane, 98 x 200 mm (3.86 x 7.87 inch)
- SITRANS LPS200, extended for up to 80 °C (176 °F), power supply Z (J2A), process connection material 2, extension length 2, extension material B, measuring vane A, and approval 2
- SITRANS LPS200, extended for up to 80 °C (176 °F), power supply Z (J2A), process connection material 2, extension length 2, extension material B, measuring vane A, and approval 1

### 1) Available with approval options 3 and 4 only and up to max 0.5 bar.
### 2) Not available with process connection options A, C, E.
### 3) Only available with the following configurations 7ML5726-5ZB12-2BA2 J2A or 7ML5726-5ZC12-2BA1 J2A.
### 4) Available with process pressure options 1 and 2 only.
### 5) Available with process temperature option 1 only.
### 6) Available with process connection options A … E only, available with process pressure option 1 only, and process temperature option 1 only.
### 7) Extension and vane will also change to 316L, only for process connection options B, D, F … L and vane A.
### 8) Available with measuring vane options A, D, E, H only.
### 9) Available with process pressure option 1 and process temperature option 1 only.
### 10) Available with process connection options B, D, F … L and vane A.
### 11) Add 16 mm (0.63 inch) to extension length.
### 12) Available with extension length options 2 … 4 only.
### 13) Available with process connection options F, G, H, J, K only.
### 14) Available with approval option 4 only.
### 15) Available with power supply options A, C, E, G, J, J1B, J1D, J1E, J2A, J2C only.
### 16) Available up to 250 °C (482 °F). This option does not automatically implement a food conform design.
### 17) Available with Power supply options J2A and J2C only.
### 18) Available with Extension material Stainless steel, threads 303 option B only.
### 19) Available with Approval options 1, 2, 3, 4, and 5 only. Approvals 1 and 3 with FM only.
Level Measurement
Point level measurement
Rotation paddle switches

Selection and Ordering data

Article No. Ord. code
SITRANS LPS200, cable extension
3ML5727-707
Rotary paddle switch for level and material detection in bulk solids.
Cable extension for increased length in top-mounted applications

Process temperature
Up to 80 °C (176 °F)
1
Up to 150 °C (302 °F)
2
Up to 250 °C (482 °F)
3
Up to 600 °C (1112 °F)1)2)
4

Power supply
230 V AC, 1 rev/min.
A
230 V AC, 5 rev/min.
C
115 V AC, 1 rev/min.
G
48 V AC, 1 rev/min.
J
24 V AC, 1 rev/min.
L
24 V DC, 1 rev/min.
N
24 V DC, 5 rev/min.
Z
48 V AC, 5 rev/min.
AC
24 V AC, 5 rev/min.
EC
Universal Voltage, 1 rev/min.
J
Universal Voltage, 1 rev/min., fail-safe
J
Universal Voltage, 5 rev/min.
Z
Universal Voltage, 5 rev/min., fail-safe
Z

Process connection
Threaded
G 1¼" [(BSPP), EN ISO 228-1]
A
G 1½" [(BSPP), EN ISO 228-1]
B
1¼" NPT [(Taper), ANSI/ASME B1.20.1]
C
1½" NPT [(Taper), ANSI/ASME B1.20.1]
D
Flanged
DN 32 PN 6, EN 1092-1, flat face6)
E
DN 100 PN 6, EN 1092-1, flat face6)
F
DN 100 PN 16, EN 1092-1, flat face
G
2" ASME 150 lb B16.5, raised face
H
3" ASME 150 lb B16.5, raised face
J
4" ASME 150 lb B16.5, raised face
K

Process pressure
Up to 0.5 bar (7.25 psi)
1
Up to 5 bar (72.5 psi)
2
Up to 10 bar (145 psi)
3

Process connection material
Aluminum5)
1
Stainless steel, threads 303 (1.4305), flanges 321 (1.4541)
2

Cable extension length
Standard cable length, 2 000 mm (78.74 inch)
0
Add Order code Y01 and plain text:
Insertion length ... mm
500 ... 1 000 mm (19.69 ... 39.37 inch) 1
Cable length 1 001 ... 2 000 mm (39.41 ... 78.74 inch) 2
Cable length 2 001 ... 3 000 mm (78.78 ... 118.11 inch) 3
Cable length 3 001 ... 4 000 mm (118.15 ... 157.48 inch) 4
Cable length 4 001 ... 5 000 mm (157.52 ... 196.85 inch) 5
Cable length 5 001 ... 6 000 mm (196.89 ... 236.22 inch) 6
Cable length 6 001 ... 7 000 mm (236.26 ... 275.59 inch) 7
Cable length 7 001 ... 10 000 mm (275.63 ... 393.70 inch) 8
Without extension12)
9

Measuring vane
Boot shaped, 35 x 106 mm (1.38 x 4.17 inch)6)
A
Hinged vane, 65 x 200 mm (2.56 x 7.87 inch)6)
B
Boot shaped, 28 x 98 mm (1.10 x 3.86 inch)7)
C
Rectangular, 50 x 150 mm (1.97 x 5.91 inch)7)
D
Rectangular, 50 x 250 mm (1.97 x 9.84 inch)7)
E
Rectangular, 98 x 150 mm (3.86 x 5.91 inch)7)
F
Rectangular, 50 x 98 mm (1.97 x 3.86 inch)7)
G

Approvals
CSA/FM Dust Ignition Proof, RCM
A
ATEX II 1/2 D, RCM
B
CSA/FM General Purpose, RCM, CE
C
IEC Ex ta/tb IIIC
D
EAC Ex ta/tb IIIC Da/Db
E

1) Above 250 °C, please contact your local Siemens Representative.
2) Above 600 °C, please contact your local Siemens Representative.
3) Basic version
4) Only available with 1¼" and 1½" process connection.
5) Only available with 1½" process connection.
6) Standard measuring vane for SITRANS LPS200, cable extension.
7) Standard measuring vane for SITRANS LPS200, cable extension.
Level Measurement  
Point level measurement  
Rotation paddle switches  

SITRANS LPS200  

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Total insertion length:</th>
<th>Y01</th>
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<tbody>
<tr>
<td>Enter the total insertion length in plain text description, max. 10 000 mm (393.70 inch)</td>
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<tr>
<td>Stainless steel tag [100 x 45 mm (3.94 x 1.77 inch)]; Measuring-point number/identification (max. 27 characters); specify in plain text</td>
<td></td>
</tr>
<tr>
<td>Reinforced cable (max. 28 kN pulling force)</td>
<td>P01</td>
</tr>
<tr>
<td>Heating of enclosure</td>
<td>A35</td>
</tr>
<tr>
<td>Signal bulb inserted in M20 cable gland</td>
<td>A20</td>
</tr>
<tr>
<td>Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing</td>
<td>K01</td>
</tr>
<tr>
<td>Functional Safety (SIL 2), Device suitable for use in accordance with IEC 61508 and IEC 61511.</td>
<td>C20</td>
</tr>
<tr>
<td>Factory test certificate - M to DIN 55350, Part 18</td>
<td>C11</td>
</tr>
</tbody>
</table>

**Further Designs**

- Please add "-Z" to Article No. and specify Order code(s).

**Spare Parts**

- Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)
- Hinged vane, 98 x 200 mm (3.86 x 7.87 inch)
- SITRANS LPS200, cable extension for up to 80 °C (176 °F), power supply Z (J2A), process connection B, process pressure 1, process connection material 2, extension length 0, measuring vane A, and approval B
- SITRANS LPS200, cable extension for up to 80 °C (176 °F), power supply Z (J2A), process connection C, process pressure 1, process connection material 2, extension length 0, measuring vane A, and approval A

1. Available with approval options C and D up to max. 0.5 bar
2. Not available with process connections A, C, E
3. Only available with the following configurations 7ML5727-5ZC12-0AA0 J2A or 7ML5727-5ZB12-0AB0 J2A
4. Available with process pressure options 1 and 2 only
5. Available with process connections A ... E only, process pressure option 1 only and process temperature options 1 and 5 only
6. Add 16 mm (0.63 inch) to extension length
7. Available with process connections F ... K only
8. Available only for process temperature up to 80 °C (176 °F) and process connection material 2
9. Available with approval option D
10. Available with power supply options A, C, E, G, J, K, L, N, J1B, J1D, J1E, J2A, J2C only
11. Available up to 250 °C (482 °F). This option does not automatically implement a food conform design (food conform gaps and radius)
12. Not available with P01 and available with Approval D, mounting kit for rope extension included
13. Available with Power supply options J2A and J2C only
Level Measurement
Point level measurement
Rotation paddle switches

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Article No. Ord. code</th>
<th>Selection and Ordering data</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS LPS200, angled extension</td>
<td>7ML5728-0</td>
</tr>
<tr>
<td>Further Designs</td>
<td></td>
</tr>
<tr>
<td>Heating of enclosure</td>
<td>A35</td>
</tr>
<tr>
<td>Signal bulb inserted in M20 cable gland</td>
<td>A20</td>
</tr>
<tr>
<td>Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing</td>
<td>K01</td>
</tr>
<tr>
<td>Stainless steel tag [100 x 45 mm (3.94 x 1.77 inch)]: Measuring-point number/identification (max. 27 characters); specify in plain text</td>
<td>Y14</td>
</tr>
<tr>
<td>Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511</td>
<td>C20</td>
</tr>
<tr>
<td>Factory test certificate - M to DIN 55350, Part 18</td>
<td>C11</td>
</tr>
</tbody>
</table>

**Process temperature**
- Up to 80 °C (176 °F)
- Up to 150 °C (302 °F)
- Up to 250 °C (482 °F)

**Power supply**
- 230 V AC, 1 rev/min.
- 230 V AC, 5 rev/min.
- 115 V AC, 1 rev/min.
- 115 V AC, 5 rev/min.
- 48 V AC, 1 rev/min.
- 24 V AC, 1 rev/min.
- 24 V DC, 1 rev/min.
- 24 V DC, 5 rev/min.
- 48 V AC, 5 rev/min.
- 24 V AC, 5 rev/min.

**Process connection**
- Flanged
  - DN 100 PN 6, EN 1092-1, flat face
  - DN 100 PN 16, EN 1092-1, flat face
  - 4” ASME 150 lb B16.5, raised face

**Process pressure**
- Up to 0.5 bar (7.25 psi)
- Up to 5 bar (72.5 psi)
- Up to 10 bar (145 psi)

**Process connection material**
- Stainless steel 303/321 (1.4305/1.4541)

**Extension length**
- 125 mm (4.92 inch)
- 150 mm (5.91 inch)
- 200 mm (7.87 inch)
- 250 mm (9.84 inch)
- 300 mm (11.81 inch)

**Measuring vane**
- Rectangular vane, 50 x 98 mm (1.97 x 3.86 inch)
- Rectangular vane, 50 x 150 mm (1.97 x 5.91 inch)
- Rectangular vane, 50 x 250 mm (1.97 x 9.84 inch)
- Rectangular vane, 98 x 150 mm (3.86 x 5.91 inch)
- Rectangular vane, 98 x 250 mm (3.86 x 9.84 inch)
- Hinged vane, 65 x 200 mm (2.56 x 7.87 inch)

**Approvals**
- CSA/FM Dust Ignition Proof, RCM
- ATEX II 1/2 D, RCM
- CSA/FM General Purpose, RCM, CE
- IEC, RCM
- IEC Ex ta/tb IIIC
- EAC Ex ta/tb IIIC Da/Db

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# Level Measurement

## Point level measurement

### Rotation paddle switches

**SITRANS LPS200**

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No. Ord. code</th>
<th>SITRANS LPS200, rigid extension</th>
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</thead>
<tbody>
<tr>
<td>7ML5730-</td>
<td>Rotary paddle switch for top mount point level and material detection in bulk solids</td>
</tr>
</tbody>
</table>

**Click on the Article No. for the online configuration in the PIA Life Cycle Portal.**

### Process temperature

- Up to 80 °C (176 °F)
- Up to 150 °C (302 °F)
- Up to 250 °C (482 °F)
- Up to 600 °C (1 112 °F)1)2)

### Power supply

- 230 V AC, 1 rev/min.
- 230 V AC, 5 rev/min.
- 115 V AC, 1 rev/min.
- 115 V AC, 5 rev/min.
- 48 V AC, 1 rev/min.
- 24 V AC, 1 rev/min.
- 24 V DC, 1 rev/min.
- 24 V DC, 5 rev/min.
- 48 V AC, 5 rev/min.
- 24 V AC, 5 rev/min.
- Universal Voltage, 1 rev/min.
- Universal Voltage, 1 rev/min., fail-safe
- Universal Voltage, 5 rev/min.
- Universal Voltage, 5 rev/min., fail-safe

### Process connection

**Threaded**

- G 1¼” [(BSPP), EN ISO 228-1]
- G 1½” [(BSPP), EN ISO 228-1]
- 1¼” NPT [(Taper), ANSI/ASME B1.20.1]
- 1½” NPT [(Taper), ANSI/ASME B1.20.1]

**Flanged**

- DN 32 PN 6, EN 1092-1, flat face3)
- DN 100 PN 6, EN 1092-1, flat face3)
- DN 100 PN 16, EN 1092-1, flat face
- 2” ASME 150 lb B16.5, raised face
- 3” ASME 150 lb B16.5, raised face
- 4” ASME 150 lb B16.5, raised face
- 2” Tri-clamp 2” (DN 50) ISO 28524)

### Process pressure

- Up to 0.5 bar (7.25 psi)
- Up to 5 bar (72.5 psi)
- Up to 10 bar (145 psi)

### Process connection material

**Aluminum**5)

**Stainless steel**

- 303 (1.4305)
- 321 (1.4541)
- 304 (1.4301)
- 316L (1.4404)6)

### Extension material (protection tube)

**Aluminum**7)8)

**Stainless steel**

- 303 (1.4305)
- 316L (1.4404)

### Extension length

**Aluminum**

- 250 ... 500 mm (9.84 ... 19.69 inch)
- 501 ... 750 mm (19.72 ... 29.53 inch)
- 751 ... 1 000 mm (29.57 ... 39.37 inch)
- 1 001 ... 1 500 mm (39.41 ... 49.25 inch)
- 1 501 ... 2 000 mm (59.09 ... 68.90 inch)
- 2 001 ... 2 500 mm (68.94 ... 78.74 inch)
- 2 501 ... 3 000 mm (78.78 ... 88.58 inch)
- 3 001 ... 3 500 mm (88.62 ... 98.43 inch)
- 3 501 ... 4 000 mm (98.46 ... 108.27 inch)
- 4 001 ... 5 000 mm (108.31 ... 118.11 inch)
- 5 001 ... 6 000 mm (118.15 ... 127.99 inch)
- 6 001 ... 7 500 mm (127.96 ... 137.80 inch)
- 7 501 ... 9 000 mm (137.83 ... 147.64 inch)
- 9 001 ... 12 000 mm (147.67 ... 157.48 inch)

**Stainless steel**

- 303 (1.4305)
- 316L (1.4404)

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Level Measurement
Point level measurement
Rotation paddle switches

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<tr>
<th>Selection and Ordering data</th>
<th>Article No.</th>
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</tr>
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<td>SITRANS LPS200, rigid extension</td>
<td>7ML5730-</td>
<td>7</td>
</tr>
<tr>
<td>Rotary paddle switch for top mount point level and material detection in bulk solids</td>
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<tr>
<td>Measuring vane</td>
<td></td>
<td></td>
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<tr>
<td>Boot shaped, 35 x 106 mm</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>(1.34 x 4.17 inch)</td>
<td></td>
<td></td>
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<tr>
<td>Hinged vane, 65 x 200 mm</td>
<td>B</td>
<td></td>
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<tr>
<td>(2.56 x 7.87 inch)</td>
<td></td>
<td></td>
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<tr>
<td>Rectangular, 50 x 150 mm</td>
<td>C</td>
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<tr>
<td>(1.97 x 5.91 inch)</td>
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<tr>
<td>Rectangular, 50 x 250 mm</td>
<td>D</td>
<td></td>
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<tr>
<td>(1.97 x 9.84 inch)</td>
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<td></td>
</tr>
<tr>
<td>Rectangular, 98 x 150 mm</td>
<td>E</td>
<td></td>
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<tr>
<td>(3.86 x 5.91 inch)</td>
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<tr>
<td>Rectangular, 98 x 250 mm</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>(3.86 x 9.84 inch)</td>
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<tr>
<td>Rectangular, 50 x 98 mm</td>
<td>G</td>
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<tr>
<td>(1.97 x 3.86 inch)</td>
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<tr>
<td>Approvals</td>
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<tr>
<td>CSA/FM Dust Ignition Proof, RCM</td>
<td>1</td>
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<tr>
<td>ATEX II 1/2 D, RCM</td>
<td>2</td>
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<tr>
<td>CSA/FM General Purpose, RCM, CE</td>
<td>3</td>
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<tr>
<td>CE, RCM</td>
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<td>IEC Ex ta/tb IIIC</td>
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<tr>
<td>EAC Ex ta/tb IIIC Da/Db</td>
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<tr>
<td>Selection and Ordering data</td>
<td>Order code</td>
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<tr>
<td>Further Designs</td>
<td></td>
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<tr>
<td>Please add “-Z” to Article No. and specify Order code(s).</td>
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<tr>
<td>Total insertion length: Enter the total insertion length in plain text description, max. 4 000 mm (157.48 inch)</td>
<td>Y01</td>
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<tr>
<td>Stainless steel tag [100 x 45 mm (3.94 x 1.77 inch)]; Measuring-point number/identification (max. 27 characters); specify in plain text</td>
<td>Y14</td>
<td></td>
</tr>
<tr>
<td>Heating of enclosure</td>
<td>A35</td>
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</tr>
<tr>
<td>Signal bulb inserted in M20 cable gland</td>
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<td></td>
</tr>
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<td>Food grade materials (in contact with process), according to 1935/2004/EC, with FDA conform shaft sealing</td>
<td>K01</td>
<td></td>
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<tr>
<td>Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511</td>
<td>C20</td>
<td></td>
</tr>
<tr>
<td>Factory test certificate - M to DIN 55350, Part 18</td>
<td>C11</td>
<td></td>
</tr>
<tr>
<td>Optional end of shaft seal for stability and ingress protection</td>
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</tr>
<tr>
<td>Max. temperature 80 °C (176 °F)</td>
<td>P06</td>
<td></td>
</tr>
<tr>
<td>Max. temperature 150 °C (302 °F)</td>
<td>P07</td>
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<tr>
<td>Max. temperature 250 °C (482 °F)</td>
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<tr>
<td>Max. temperature 600 °C (1 112 °F)</td>
<td>P09</td>
<td></td>
</tr>
<tr>
<td>Sliding sleeve: standard, max. pressure 0.5 bar</td>
<td>P12</td>
<td></td>
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<tr>
<td>Sliding sleeve: pressure tight, for over-pressure application, dependent on pressure option ordered</td>
<td>P13</td>
<td></td>
</tr>
<tr>
<td>Operating Instructions</td>
<td>Article No.</td>
<td></td>
</tr>
<tr>
<td>Multi-language</td>
<td>A5E34210883</td>
<td></td>
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<tr>
<td>Note: The Operating Instructions should be ordered as a separate line on the order. All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spare Parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)</td>
<td>7ML1830-1KH</td>
<td></td>
</tr>
<tr>
<td>Hinged vane, 98 x 200 mm (3.86 x 7.87 inch)</td>
<td>7ML1830-1KJ</td>
<td></td>
</tr>
</tbody>
</table>

1) Available with approval options 3 and 4, up to max 0.5 bar
2) Not available with process connections A, C, E.
3) Available with process pressure options 1 and 2 only.
4) Available with process temperature 1 only.
5) Available with process connections A ... E only, with process pressure option 1 and process temperature option 1 only.
6) Available with process connection options B, D, F ... L and measuring vane option A.
7) Available with process pressure 1 and process temperature 1 only.
8) Available with extension length options A ... Q only.
9) Available with extension length options R ... Y only.
10) Available with process connection options B, D, F ... L and measuring vane A, process connection material 3. Available only with extension length options P1A ... P1H only.
11) Only available with seal at tube end options P06 ... P09.
12) Add 16 mm (0.63 inch) to extension length.
14) Available with approval option 4 only.
16) Available when ordered with ingress protection seal options P06 ... P09 only.
17) Available up to 250 °C (482 °F). This option does not automatically implement a food conform design.
18) Available with process pressure option 1 only.
19) Available up to 250 °C (482 °F).
20) Available with Power supply options J2A and J2C only.
21) Available with Approval options 1, 2, 3, 4, and 5 only. Approvals 1 and 3 with FM only.
22) Internal probe construction is 1.4305, add seal option P09 to prevent ingress.
Level Measurement
Point level measurement
Rotation paddle switches

SITRANS LPS200

Dimensional drawings

**Standard model: compact version**
- Conduit connection: M20 or ½” NPT
- Ambient temperature: -25 ... +60 °C (-13 ... +140 °F)
- Zone 21 (Cat. 2)
- Zone 20 (Cat. 1)
- Process temperature: -25 ... +80 °C (-13 ... +176 °F)
- Shaft protected option
- Measuring vane options:
  - Rectangular vane options:
    - A: 50 (1.97) / 150 (5.90) / 75 (2.95) / 200 (7.87) / 250 (9.84)
    - B: 98 (3.86) / 160 (6.30)
- Thread length:
  - BSP: 20.5 (0.81)
  - NPT: 24 (0.94)
- Measuring vane

**High temperature model: compact version**
- Ambien temperature: -25 ... +60 °C (-13 ... +140 °F)
- Zone 21 (Cat. 2)
- Zone 20 (Cat. 1)
- Process temperature: -25 ... +60 °C (-13 ... +140 °F)
- Shaft protected option
- Angle option
- Rope option
- Spring adjustment:
  - Central (factory setting) / Light
    - Boot shaped:
      - 35 x 106 mm: 200 g/l (12.5 lb/ft³) / 300 g/l (18.7 lb/ft³)
      - 28 x 98 mm: 500 g/l (31.2 lb/ft³) / 150 g/l (9.4 lb/ft³)
      - 50 x 98 mm: 150 g/l (9.4 lb/ft³) / 250 g/l (15.6 lb/ft³)
    - Rectangular:
      - 50 x 150 mm: 50 g/l (3.1 lb/ft³) / 50 g/l (3.1 lb/ft³)
      - 250 mm: 100 g/l (6.2 lb/ft³) / 50 g/l (3.1 lb/ft³)
      - 98 x 150 mm: 100 g/l (6.2 lb/ft³) / 50 g/l (3.1 lb/ft³)
    - Hinged:
      - 98 x 200 mm: 70 g/l (4.4 lb/ft³) / 100 g/l (6.2 lb/ft³)

**Notes**
- For heavy material, only top mounting of paddle switch is recommended.
  - Compact LPS200 is recommended for side mounting on bins for low or intermediate material levels.
- For use with all approval options except CSA class II. See manual for more details.

SITRANS LPS200, dimensions in mm (inch)
Level Measurement
Point level measurement
Rotation paddle switches

SITRANS LPS200

Fail safe alarm switching and timing behaviour:
If the vane is not covered, the rotating vane shaft will send pulses at 20 second intervals.
In case of fault, the pulses are missed.
After 30 seconds, the alarm relay will open.

Max. 4 mm² (AWG12)

Power supply:
AC version:
24 V or 48 V or 115 V or 230 V 50/60 Hz max. 4 VA
All voltages ± 10 %
Supply voltage as selected.
External fuse: max 10 A, fast or slow, HBC, 250 V

DC version:
24 V DC ± 15 % max. 2.5 W
External fuse: not required

Signal output:
Micro switch, SPDT contact
max. 250 V AC, 5 A, non inductive
max. 30 V DC, 4 A, non inductive
External fuse: max 10 A, fast or slow, HBC, 250 V

* See manual for universal voltage with SIL.
** With option Fail safe alarm (rotation control).
Contact open when de-energised.
Fail safe alarm switching and timing behaviour:
If the vane is not covered, the rotating vane shaft will send pulses at 20 second intervals.
In case of fault, the pulses are missed.
After 30 seconds, the alarm relay will open.

Signal output: delay
Sensor covered -> free
Factory setting = 3 sec

Sensor covered -> covered
Factory setting = 1 sec

SITRANS LPS200 connections