

Level Measurement

Point level measurement – Rotating paddle switches

SITRANS LPS200

Overview



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

Benefits

- Proven paddle switch technology for bulk solids
- High integrity mechanical seal
- Optional switch selectable power supply
- 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

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 g/l (2.19 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	
Measuring principle	Rotating point level switch
Input	
Measured variable	High and low, and demand
Output	
Output signal	Microswitch 5 A at 250 V AC, non inductive Microswitch SPDT contact 4 A at 30 V DC, non-inductive Standard (1 rpm model): approx 1.3 seconds Optional process applications (5 rpm model): approx. 0.26 seconds
• Alarm output	
• Pickup delay	
Sensitivity	
Adjustable via reset force of spring or geometry of measuring vane	
Rated operating conditions	
Installation conditions	Indoor/outdoor
• Location	
Ambient conditions	-25 ... +60 °C (-13 ... +140 °F)
• Ambient temperature	
• Installation category	III
• Pollution degree	
Medium conditions	Bulk solids
• Temperature	-25 ... +80 °C (-13 ... +176 °F) -25 ... +600 °C (-13 ... +1112 °F)
- Standard	
- Optional	Max. 0.5 bar g (7.25 psi g) Max. 10 bar g (145 psi g)
• Pressure (vessel)	
- Standard	• Can detect down to 100 g/l (6.25 lb/ft ³) • Can detect down to 15 g/l (2.19 lb/ft ³)
- Optional	
• Minimum material density	
- Standard measuring vane	
- Optional measuring vane	
Design	
Material	Epoxy coated aluminum Stainless steel or aluminum
• Enclosure	
• Process connection, measuring shaft and vane	Thread NPT, BSP, and flange options
Process connection	
Degree of protection	IP65/Type 4/NEMA 4
Conduit entry	2 x M20x1.5 or 2 x ½" NPT
Power supply	
Jumper selectable	• 115 V AC, ± 15%, 50 ... 60 Hz, 4 VA or 230 V AC, ± 15%, 50 Hz, 6 VA, or 48 V AC, or 24 V AC • or 24 V DC, ± 15%, 2.5 W
Certificates and approvals	
• CSA/FM General Purpose • CE • CSA/FM Dust Ignition Proof • ATEX II 1/2 D • C-TICK	

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Point level measurement – Rotating paddle switches

SITRANS LPS200

Selection and Ordering data	Order No.
SITRANS LPS200, compact Rotary paddle switch for level detection in bulk solids. Compact design for side or top mounted applications.	7ML5725- - - - - - 0
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) 10)} Up to +80 °C (+176 °F) basic version aluminum ^{2) 3)} Up to +80 °C (+176 °F) basic version stainless steel ^{2) 4)}	 1 2 3 4 5 6
Power supply 230 V AC, 1 rev/min. 230 V AC, 1 rev/min., fail-safe 230 V AC, 5 rev/min. 230 V AC, 5 rev/min., fail-safe 115 V AC, 1 rev/min. 115 V AC, 1 rev/min., fail-safe 115 V AC, 5 rev/min. 115 V AC, 5 rev/min., fail-safe 48 V AC, 1 rev/min. 24 V AC, 1 rev/min. 24 V DC, 1 rev/min. 24 V DC, 1 rev/min., fail-safe 24 V DC, 5 rev/min. 24 V DC, 5 rev/min., fail-safe Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 1 rev/min. Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 5 rev/min.	 A B C D E F G H J K L M N P Q R
Process connection <u>Threaded</u> G 1/4" [(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] <u>Flanged</u> DN 32 PN 6, EN1092-1 (1.4541/321) DN 100 PN 6, EN1092-1 (1.4541/321) DN 100 PN 16, EN1092-1 (1.4541/321) 2" ASME 150 lbs B16.5 (1.4541/321) 3" ASME 150 lbs B16.5 (1.4541/321) 4" ASME 150 lbs B16.5 (1.4541/321)	 A B C D E F G H J K L M
Process pressure Up to 0.5 bar (7.25 psi) Up to 5 bar (72.5 psi) Up to 10 bar (145 psi)	 1 2 3
Process connection material Aluminum ⁵⁾ Stainless steel 303 (1.4305)	 1 2
Extension length 100 mm (3.94 inch) ⁶⁾ 150 mm (5.91 inch) 200 mm (7.87 inch) 250 mm (9.84 inch) 300 mm (11.81 inch)	 1 2 3 4 5

Selection and Ordering data	Order No.
SITRANS LPS200, compact Rotary paddle switch for level detection in bulk solids. Compact design for side or top mounted applications.	7ML5725- - - - - - 0
Measuring vane Boot shaped, 35 x 106 mm (1.38 x 4.17 inch) ⁷⁾ Hinged vane, 65 x 200 mm (2.56 x 7.87 inch) ⁷⁾⁸⁾ Boot shaped, 28 x 98 mm (1.10 x 3.86 inch) Rectangular 50 x 150 mm (1.97 x 5.91 inch) ⁹⁾ Rectangular 50 x 250 mm (1.97 x 9.84 inch) ⁹⁾ Rectangular 98 x 150 mm (3.86 x 5.91 inch) ⁹⁾ Rectangular 98 x 250 mm (3.86 x 9.84 inch) ⁹⁾	 A B C D E F G
Approvals CSA/FM Dust Ignition Proof, C-TICK ATEX II 1/2 D, C-TICK CSA/FM General Purpose, C-TICK CE, C-TICK	 A B C D
¹⁾ Available with approval option C and D only, up to max. 0.8 bar ²⁾ Basic version is cost effective and offers fast delivery ³⁾ Available only with power supply option A and with process connection C, and approval D, or power supply E with process connection E, and approval C, and then process pressure 1, process connection material 1, extension length 2, measuring vane A ⁴⁾ Available only with power supply option Q, process connection C with approval B, or process connection E with approval A, and then process pressure 1, process connection material 2, extension length 2 and measuring vane A ⁵⁾ Available with process connections A to F, process pressure option 1, and process temperature option 1 and 5 only ⁶⁾ Available with measuring vane options A, C to G, only ⁷⁾ Add 16 mm (0.63 inch) to extension length ⁸⁾ Available with extension length options 2 to 5 only ⁹⁾ Available with process connections G, H, J to M, only ¹⁰⁾ Not available with process connection G	

► Available ex stock.

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Selection and Ordering data	Order code
Further Designs Please add "-Z" to Order No. and specify Order code(s).	
Heating of enclosure ^{1) 2)}	A35
Signal bulb inserted in M20 cable gland ¹⁾	A20
SITRANS LPS200 designed for food applications with shaft seal conforming to FDA standards	K01
Additional Operating Instructions Multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	Order No. 7ML1998-5FS62
Spare Parts Motor gear /PLC, multi-voltage	7ML1830-1KG
Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)	7ML1830-1KH
Hinged vane, 65 x 210 mm (2.56 x 8.27 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) Extension: 1000, 900, 800, 700, 600 (39.4, 35.4, 31.5, 27.6, 23.6 inch) Extension: 1500, 1400, 1300, 1200, 1100 mm (59.1, 55.1, 51.2, 47.2, 43.3 inch)	7ML5711-0AA 7ML5711-1AA 7ML5711-2AA
Available ex stock SITRANS LPS200, compact for up to +80 °C (+176 °F), aluminum, with power supply A, process connection C, process pressure 1, process connection material 1, extension length 2, measuring vane A, and approval D 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 SITRANS LPS200, compact for up to +80 °C (+176 °F), stainless steel, with power supply Q, process connection C, process pressure 1, process connection material 2, extension length 2, measuring vane A, and approval B SITRANS LPS200, compact for up to +80 °C (+176 °F), stainless steel, with power supply Q, process connection E, process pressure 1, process connection material 2, extension length 2, measuring vane A, and approval A	7ML1830-1KG 7ML5725-5EE11-2AC0 7ML5725-6QC12-2AB0 7ML5725-6QE12-2AA0

¹⁾ Available with approval option D only

²⁾ Available with power supply options A to H, J to N, P only

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Selection and Ordering data

Order No.

SITRANS LPS200, shaft protected

Rotary paddle switch for level detection in bulk solids; ideal for heavy, sticky, or high impact applications.
Designed with added protection tube for enhanced shaft protection

7ML5726-

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 version³⁾

1

2

3

4

5

Power supply

230 V AC, 1 rev/min.

230 V AC, 1 rev/min., fail-safe

230 V AC, 5 rev/min.

230 V AC, 5 rev/min., fail-safe

115 V AC, 1 rev/min.

115 V AC, 1 rev/min., fail-safe

115 V AC, 5 rev/min.

115 V AC, 5 rev/min., fail-safe

48 V AC, 1 rev/min.

A

B

C

D

E

F

G

H

J

K

L

M

N

P

Q

R

Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 1 rev/min.

Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 5 rev/min.

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]

A

B

C

D

Flanged

DN 32 PN 6, EN1092-1 (1.4541/321)

DN 100 PN 6, EN1092-1 (1.4541/321)

DN 100 PN 16, EN1092-1 (1.4541/321)

E

F

G

2" ASME 150 lbs B16.5 (1.4541/321)

3" ASME 150 lbs B16.5 (1.4541/321)

4" ASME 150 lbs B16.5 (1.4541/321)

H

J

K

Process pressure

Up to 0.5 bar (7.25 psi)

Up to 5 bar (72.5 psi)

Up to 10 bar (145 psi)

1

2

3

Process connection material

Aluminum^{4) 5)}

Stainless steel 303 (1.4305)

1

2

Extension length

150 mm (5.91 inch)⁶⁾

200 mm (7.87 inch)

250 mm (9.84 inch)

300 mm (11.81 inch)

1

2

3

4

Extension material (protection tube)

Aluminum⁴⁾

Stainless steel 303 (1.4305)

A

B

Selection and Ordering data

Order No.

SITRANS LPS200, shaft protected

Rotary paddle switch for level detection in bulk solids; ideal for heavy, sticky, or high impact applications.
Designed with added protection tube for enhanced shaft protection

7ML5726-

Measuring vane

Boot shaped 35 x 106 mm (1.38 x 4.17 inch)⁷⁾Hinged vane 65 x 200 mm (2.56 x 7.87 inch)⁷⁾Rectangular 50 x 150 mm (1.97 x 5.91 inch)⁸⁾Rectangular 50 x 250 mm (1.97 x 9.84 inch)⁸⁾Rectangular 98 x 150 mm (3.86 x 5.91 inch)⁸⁾Rectangular 98 x 250 mm (3.86 x 9.84 inch)⁸⁾

A

B

D

E

F

G

Approvals

CSA/FM Dust Ignition Proof, C-TICK

ATEX II 1/2 D, C-TICK

CSA/FM General Purpose, C-TICK

CE, C-TICK

1

2

3

4

1) Available with approval option 3 and 4 only, up to max. 0.8 bar

2) Not available with process connection G

3) Available with power supply option Q (process connection B with approval 2 or process connection C with approval 1), process pressure 1, process connection material 2, extension length 2, protection tube B and measuring vane A only

4) Available with process connections A to D, and process temperature option 1 and 5 only

5) Available with process pressure option 1 only

6) Not available with measuring vane option B

7) Add 16 mm (0.63 inch) to extension length

8) Available with process connections E to H, J, K, only

► Available ex stock.

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Selection and Ordering data	Order code
Further Designs Please add "-Z" to Order No. and specify Order code(s).	
Heating of enclosure ¹⁾²⁾	A35
Signal bulb inserted in M20 cable gland ¹⁾	A20
SITRANS LPS200 designed for food applications with shaft seal conforming to FDA standards	K01
Additional Operating Instructions Multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	Order No. 7ML1998-5FS62
Spare Parts Motor gear /PLC, multi-voltage	7ML1830-1KG
Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)	7ML1830-1KH
Hinged vane, 65 x 210 mm (2.56 x 8.27 inch)	7ML1830-1KJ
Available ex stock SITRANS LPS200, extended for up to +80 °C (+176 °F), power supply Q, process connection B, process pressure 1, process connection material 2, extension length 2, extension material B, measuring vane A, and approval 2	7ML5726-5QB12-2BA2
SITRANS LPS200, extended for up to +80 °C (+176 °F), power supply Q, process connection C, process pressure 1, process connection material 2, extension length 2, extension material B, measuring vane A, and approval 1	7ML5726-5QC12-2BA1

¹⁾ Available with approval option 4 only

²⁾ Available with power supply options A to H, J to N, P only

Level Measurement

Point level measurement – Rotating paddle switches

SITRANS LPS200

Selection and Ordering data

Order No.

SITRANS LPS200, cable extension

Rotary paddle switch for level detection in bulk solids

Cable extension for increased length in top-mounted applications

7ML5727-

- - - - - 0

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^{3) 5)}

1

2

3

4

5

Power supply

230 V AC, 1 rev/min.

230 V AC, 1 rev/min., fail-safe

230 V AC, 5 rev/min.

230 V AC, 5 rev/min., fail-safe

115 V AC, 1 rev/min.

115 V AC, 1 rev/min., fail-safe

115 V AC, 5 rev/min.

115 V AC, 5 rev/min., fail-safe

48 V AC, 1 rev/min.

24 V AC, 1 rev/min.

24 V DC, 1 rev/min.

24 V DC, 1 rev/min., fail-safe

24 V DC, 5 rev/min.

24 V DC, 5 rev/min., fail-safe

Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 1 rev/min.

Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 5 rev/min.

A

B

C

D

E

F

G

H

J

K

L

M

N

P

Q

R

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]

A

B

C

D

Flanged

DN 32 PN 6, EN1092-1 (1.4541/321)

DN 100 PN 6, EN1092-1 (1.4541/321)

DN 100 PN 16, EN1092-1 (1.4541/321)

2" ASME 150 lbs B16.5 (1.4541/321)

3" ASME 150 lbs B16.5 (1.4541/321)

4" ASME 150 lbs B16.5 (1.4541/321)

E

F

G

H

J

K

Process pressure

Up to 0.5 bar (7.25 psi)

Up to 5 bar (72.5 psi)

Up to 10 bar (145 psi)

1

2

3

Process connection material

Aluminum⁴⁾

Stainless steel 303 (1.4305)

1

2

Cable extension length

Standard cable length, 2000 mm (78.74 inch)

Add order code Y01 and plain text:

"Insertion length ... mm"

500 ... 1000 mm (19.69 ... 39.37 inch)

Cable length 1001 ... 2000 mm

(39.41 ... 78.74 inch)

Cable length 2001 ... 3000 mm

(78.78 ... 118.11 inch)

Cable length 3001 ... 4000 mm

(118.15 ... 157.48 inch)

Cable length 4001 ... 5000 mm

(157.52 ... 196.85 inch)

Cable length 5001 ... 6000 mm

(196.89 ... 236.22 inch)

Cable length 6001 ... 7000 mm

(236.26 ... 275.59 inch)

Cable length 7001 ... 10000 mm

(275.63 ... 393.70 inch)

0

1

2

3

4

5

6

7

8

Selection and Ordering data

Order No.

SITRANS LPS200, cable extension

Rotary paddle switch for level detection in bulk solids

Cable extension for increased length in top-mounted applications

7ML5727-

- - - - - 0

Measuring vane

Boot shaped, 35 x 106 mm (1.38 x 4.17 inch)⁵⁾Hinged vane, 65 x 200 mm (2.56 x 7.87 inch)⁵⁾

Boot shaped, 28 x 98 mm (1.10 x 3.86 inch)

Rectangular 50 x 150 mm (1.97 x 5.91 inch)⁶⁾Rectangular 50 x 250 mm (1.97 x 9.84 inch)⁶⁾Rectangular 98 x 150 mm (3.86 x 5.91 inch)⁶⁾

A

B

C

D

E

F

Approvals

CSA/FM Dust Ignition Proof, C-TICK

ATEX II 1/2 D, C-TICK

CSA/FM General Purpose, C-TICK

CE, C-TICK

A

B

C

D

¹⁾ Available with approval option C and D only, up to max. 0.8 bar²⁾ Not available with process connection G³⁾ Available only with Power supply Q, (Process connection B with Approvals B or Process connection C with Approvals A), Process pressure 1, Process connection material 2, Cable Extension length 0 and Measuring Vane A⁴⁾ Available with process connections A to D, process pressure option 1, and process temperature option 1 and 5 only⁵⁾ Add 16 mm (0.63 inch) to extension length⁶⁾ Available with process connections E to H, J, K, only

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Selection and Ordering data	Order code
Further Designs	
Please add "-Z" to Order No. and specify Order code(s).	
Total insertion length: Enter the total insertion length in plain text description, max. 10000 mm (393.70 inch)	Y01
Reinforced cable (max. 28 kN pulling force)	P01
Heating of enclosure ^{1) 2)}	A35
Signal bulb inserted in M20 cable gland ¹⁾	A20
Additional Operating Instructions	Order No.
Multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	7ML1998-5FS62
Spare Parts	
Motor gear /PLC, multi-voltage	7ML1830-1KG
Replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17 inch)	7ML1830-1KH
Hinged vane, 65 x 210 mm (2.56 x 8.27 inch)	7ML1830-1KJ
Rope extension kit, 2 m (6.56 ft)	7ML1830-1KK
Available ex stock	
SITRANS LPS200, cable extension for up to +80 °C (+176 °F), power supply Q, process connection B, process pressure 1, process connection material 2, extension length 0, measuring vane A, and approval B	7ML5727-5QB12-0AB0
SITRANS LPS200, cable extension for up to +80 °C (+176 °F), power supply Q, process connection C, process pressure 1, process connection material 2, extension length 0, measuring vane A, and approval A	7ML5727-5QC12-0AA0

¹⁾ Available with approval option D only

²⁾ Available with power supply options A to H, J to N, and P, only

Level Measurement

Point level measurement – Rotating paddle switches

SITRANS LPS200

Selection and Ordering data

Order No.

SITRANS LPS200, angled extension

Rotary paddle switch with robust design for level detection in bulk solids; ideal for heavy or sticky applications.

Angled extension designed to avoid falling material and rotate horizontally in side mount applications

7ML5728-

0

Process temperature

Up to +80 °C (+176 °F)

Up to +150 °C (+302 °F)

Up to +250 °C (+482 °F)

1

2

3

Power supply

230 V AC, 1 rev/min.

230 V AC, 1 rev/min., fail-safe

230 V AC, 5 rev/min.

A

B

C

230 V AC, 5 rev/min., fail-safe

115 V AC, 1 rev/min.

115 V AC, 1 rev/min., fail-safe

115 V AC, 5 rev/min.

115 V AC, 5 rev/min., fail-safe

48 V AC, 1 rev/min.

24 V AC, 1 rev/min.

24 V DC, 1 rev/min.

24 V DC, 1 rev/min., fail-safe

D

E

F

G

H

J

K

L

M

N

P

Q

Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 1 rev/min.

R

Process connection

Flanged

DN 100 PN 6, EN1092-1 (1.4541/321)

DN 100 PN 16, EN1092-1 (1.4541/321)

4" ASME 150 lbs B16.5 (1.4541/321)

A

B

C

Process pressure

Up to 0.5 bar (7.25 psi)

Up to 5 bar (72.5 psi)

Up to 10 bar (145 psi)

1

2

3

Process connection material

Stainless steel 303 (1.4305)

1

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)

1

2

3

4

5

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)

A

B

C

D

E

F

Approvals

CSA/FM Dust Ignition Proof, C-TICK

ATEX II 1/2 D, C-TICK

CSA/FM General Purpose, C-TICK

CE, C-TICK

A

B

C

D

Selection and Ordering data

Order code

Further Designs

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

Heating of enclosure^{1) 2)}

A35

Signal bulb inserted in M20 cable gland¹⁾

A20

Additional Operating Instructions

Multi-language

This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

Order No.

7ML1998-5FS62

Spare Parts

Motor gear /PLC, multi-voltage

7ML1830-1KG

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

7ML1830-1KH

Hinged vane, 65 x 210 mm (2.56 x 8.27 inch)

7ML1830-1KJ

¹⁾ Available with approval option D only

²⁾ Available with power supply options A to H, J to N, P only

Level Measurement

Point level measurement – Rotating paddle switches

SITRANS LPS200

Selection and Ordering data	Order No.
SITRANS LPS200, rigid extension Rotary paddle switch for top mount point level detection in bulk solids	7ML5730-
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)}	1 2 3 4
Power supply 230 V AC, 1 rev/min. 230 V AC, 1 rev/min., fail-safe 230 V AC, 5 rev/min. 230 V AC, 5 rev/min., fail-safe 115 V AC, 1 rev/min. 115 V AC, 1 rev/min., fail-safe 115 V AC, 5 rev/min. 115 V AC, 5 rev/min., fail-safe 48 V AC, 1 rev/min. 24 V AC, 1 rev/min. 24 V DC, 1 rev/min. 24 V DC, 1 rev/min., fail-safe 24 V DC, 5 rev/min. 24 V DC, 5 rev/min., fail-safe Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 1 rev/min. Switch selectable 230 V AC/115 V AC/24 V DC multivoltage, 5 rev/min.	A B C D E F G H J K L M N P Q R
Process connection <u>Threaded</u> 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] <u>Flanged</u> DN 32 PN 6, EN1092-1 (1.4541/321) DN 100 PN 6, EN1092-1 (1.4541/321) DN 100 PN 16, EN1092-1 (1.4541/321) 2" ASME 150 lbs B16.5 (1.4541/321) 3" ASME 150 lbs B16.5 (1.4541/321) 4" ASME 150 lbs B16.5 (1.4541/321)	A B C D E F G H J K
Process pressure Up to 0.5 bar (7.25 psi) Up to 5 bar (72.5 psi) Up to 10 bar (145 psi)	1 2 3
Process connection material Aluminum ^{3) 4) 5)} Stainless steel 303 (1.4305) ⁶⁾	1 2
Extension material (protection tube) Aluminum ^{3) 5) 7) 8)} Stainless steel 303 (1.4305) ⁶⁾	0 1
Extension length Aluminum 250 ... 500 mm (9.84 ... 19.69 inch) 501 ... 750 mm (19.72 ... 29.53 inch) 751 ... 1000 mm (29.57 ... 39.37 inch) 1001 ... 1250 mm (39.41 ... 42.21 inch) 1251 ... 1500 mm (49.25 ... 59.06 inch) 1501 ... 1750 mm (59.09 ... 68.90 inch) 1751 ... 2000 mm (68.94 ... 78.74 inch) 2001 ... 2250 mm (78.78 ... 88.58 inch) 2251 ... 2500 mm (88.62 ... 98.43 inch) 2501 ... 2750 mm (98.46 ... 108.27 inch) 2751 ... 3000 mm (108.31 ... 118.11 inch) 3001 ... 3250 mm (118.15 ... 127.95 inch) 3251 ... 3500 mm (127.99 ... 137.80 inch) 3501 ... 3750 mm (137.83 ... 147.64 inch) 3751 ... 4000 mm (147.67 ... 157.48 inch)	A B C D E F G H J K L M N P Q

Selection and Ordering data	Order No.
SITRANS LPS200, rigid extension Rotary paddle switch for top mount point level detection in bulk solids	7ML5730-
Stainless steel 303 (1.4305) 250 ... 500 mm (9.84 ... 19.69 inch) 501 ... 750 mm (19.72 ... 29.53 inch) 751 ... 1000 mm (29.57 ... 39.37 inch) 1001 ... 1500 mm (39.41 ... 59.05 inch) 1501 ... 2000 mm (59.09 ... 78.74 inch) 2001 ... 2500 mm (78.78 ... 98.42 inch) 2501 ... 3000 mm (98.46 ... 118.11 inch) 3001 ... 4000 mm (118.14.78 ... 157.48 inch)	R S T U V W X Y
Measuring vane Boot shaped, 35 x 106 mm (1.34 x 4.17 inch) ⁹⁾ Hinged vane, 60 x 200 mm (2.36 x 7.87 inch) Rectangular 50 x 150 mm (1.97 x 5.91 inch) ¹⁰⁾ Rectangular 50 x 250 mm (1.97 x 9.84 inch) ¹⁰⁾ Rectangular 98 x 150 mm (3.86 x 5.91 inch) ¹⁰⁾ Rectangular 98 x 250 mm (3.86 x 9.84 inch) ¹⁰⁾	A B C D E F
Approvals CSA/FM Dust Ignition Proof, C-TICK ATEX II 1/2 D, C-TICK CSA/FM General Purpose, C-TICK CE, C-TICK	1 2 3 4

- 1) Available with approval option 3 and 4 only, up to max. 0.8 bar
- 2) Not available with process connection G
- 3) Available with process connections A to D only
- 4) Available with process pressure option 1 only
- 5) Available with extension length options A to Q only
- 6) Available with extension length options R to Y only
- 7) Available with process connection material option 1 only
- 8) Available with process temperature option 1 and 5 only
- 9) Add 16 mm (0.63 inch) to extension length
- 10) Available with process connections E to H, J, K, only

Level Measurement

Point level measurement – Rotating paddle switches

SITRANS LPS200

Selection and Ordering data

Order code

Further Designs

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

Total insertion length: Enter the total insertion length in plain text description, max. 4000 mm (157.48 inch)

Y01

Heating of enclosure¹⁾²⁾

A35

Signal bulb inserted in M20 cable gland¹⁾

A20

SITRANS LPS200 designed for food applications with shaft seal conforming to FDA standards³⁾

K01

Seal at tube end for ingress protection and shaft stability

Max. temperature +80 °C (+176 °F)

P06

Max. temperature +150 °C (+302 °F)

P07

Max. temperature +250 °C (+482 °F)

P08

Max. temperature +600 °C (+1112 °F)

P09

Sliding sleeve (standard, max. pressure 0.8 bar)

P12

Sliding sleeve (pressure tight, for over-pressure application starting from 1 bar max., dependent on pressure option ordered)

P13

Additional Operating Instructions

Order No.

Multi-language

7ML1998-5FS62

This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.

Spare Parts

Motor gear/PLC, multi-voltage

7ML1830-1KG

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

7ML1830-1KH

Hinged vane, 65 x 210 mm (2.56 x 8.27 inch)

7ML1830-1KJ

¹⁾ Available with approval option 4 only

²⁾ Available with power supply options A to H, J to N, P, only

³⁾ Available when ordered with ingress protection seal P06 to P09 only

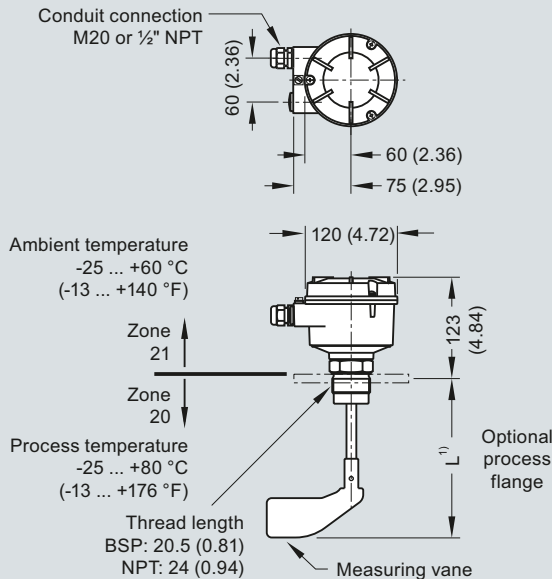
Level Measurement

Point level measurement – Rotating paddle switches

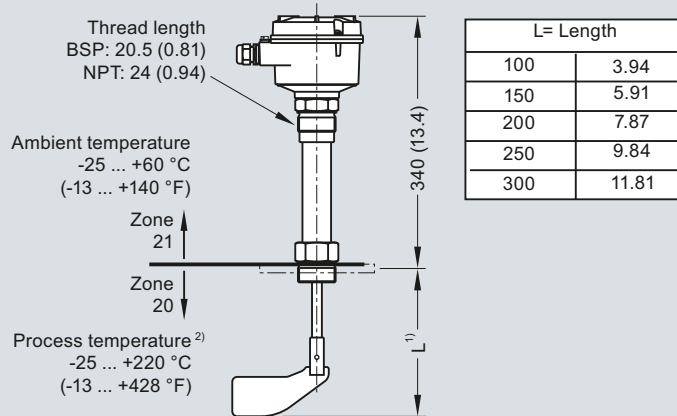
SITRANS LPS200

Dimensional drawings

Standard model: compact version

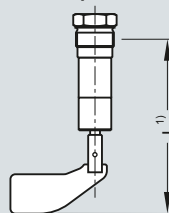


High temperature model: compact version

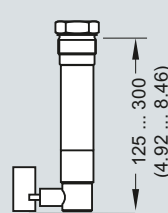


L= Length	
100	3.94
150	5.91
200	7.87
250	9.84
300	11.81

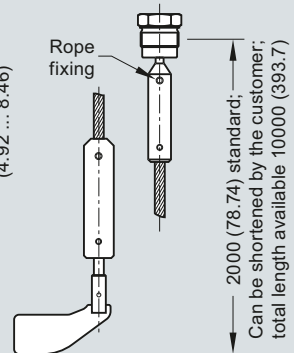
Shaft protected option



Angle option

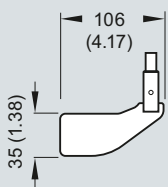


Rope option

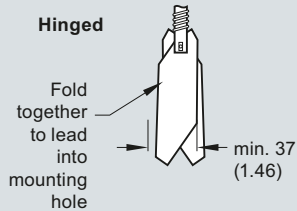


Measuring vanes

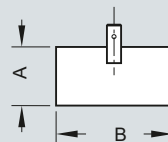
Standard



Hinged



Rectangular



Rectangular vane options

A	B
50 (1.97)	98 (3.86)
50 (1.97)	150 (5.90)
50 (1.97)	250 (9.84)
98 (3.86)	150 (5.90)
98 (3.86)	250 (9.84)

- For 35 x 106 mm boot shaped and 65 x 210 mm hinged measuring vanes, add 16 mm to extension length.
- For use with all approval options except CSA class II. See manual for more details.

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.

Vane	Completely covered with material		Covered up to 10 cm (3.93") with material	
	Spring adjustment		Spring adjustment	
	light	central (factory setting)	light	central (factory setting)
boot shaped 35 x 106 mm	200 g/l (12.5 lb/ft³)	300 g/l (18.7 lb/ft³)	100 g/l (6.2 lb/ft³)	150 g/l (9.4 lb/ft³)
boot shaped 28 x 98 mm	300 g/l (18.7 lb/ft³)	500 g/l (31.2 lb/ft³)	150 g/l (9.4 lb/ft³)	150 g/l (9.4 lb/ft³)
rectangular 50 x 98 mm	300 g/l (18.7 lb/ft³)	500 g/l (31.2 lb/ft³)	150 g/l (9.4 lb/ft³)	250 g/l (15.6 lb/ft³)
rectangular 50 x 150 mm	80 g/l (5.0 lb/ft³)	120 g/l (7.5 lb/ft³)	40 g/l (2.5 lb/ft³)	60 g/l (3.7 lb/ft³)
rectangular 50 x 250 mm	30 g/l (1.9 lb/ft³)	50 g/l (3.1 lb/ft³)	15 g/l (0.9 lb/ft³)	25 g/l (1.6 lb/ft³)
rectangular 98 x 150 mm	30 g/l (1.9 lb/ft³)	50 g/l (3.1 lb/ft³)	15 g/l (0.9 lb/ft³)	25 g/l (1.6 lb/ft³)
rectangular 98 x 250 mm	20 g/l (1.2 lb/ft³)	30 g/l (1.9 lb/ft³)	15 g/l (0.9 lb/ft³)	15 g/l (0.9 lb/ft³)
hinged 65 x 210 mm	70 g/l (4.4 lb/ft³)	100 g/l (6.2 lb/ft³)	35 g/l (2.2 lb/ft³)	50 g/l (3.1 lb/ft³)
hinged 60 x 200 mm	70 g/l (4.4 lb/ft³)	100 g/l (6.2 lb/ft³)	35 g/l (2.2 lb/ft³)	50 g/l (3.1 lb/ft³)

SITRANS LPS200, dimensions in mm (inch)

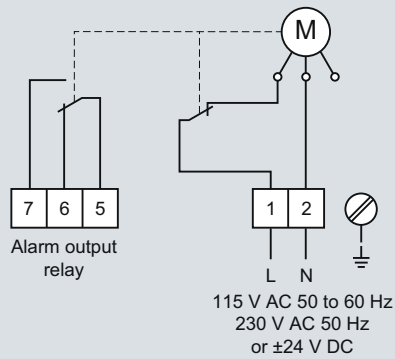
Level Measurement

Point level measurement – Rotating paddle switches

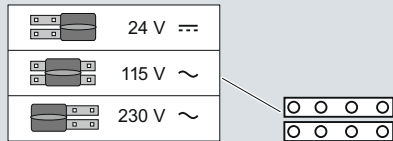
SITRANS LPS200

Schematics

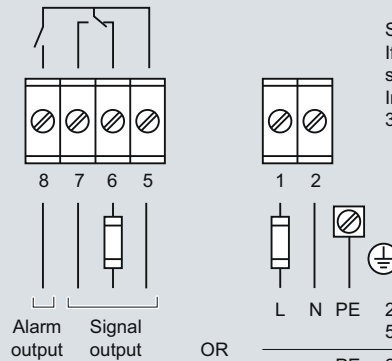
Switch Selectable Connection



Voltage Selector



AC or DC version, SPDT relay, fail-safe



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.

SITRANS LPS200 connections