

SITRANS L Level instruments

Point level measurement

SITRANS LPS200

Overview



Fig. 5/2 SITRANS LPS200

Application

The SITRANS LPS200 is an electro-mechanical rotary paddle switch for level detection of powder and granular solids. 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 35 g/l (2.19 lb/ft³) with the optional hinged 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. The LPS200 is equipped with a standard vane which is effective in most applications, but can be configured with a hinged vane for increased sensitivity for light materials.

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

Benefits

- Proven paddle switch technology for bulk solids
- High integrity mechanical seal
- Switch selectable power supply
- Unique friction clutch mechanism
- Stainless steel 1 1/4" NPT or 1 1/2" BSP threaded connection
- Rotatable enclosure
- Hinged paddle optional for use with low density materials
- Simple installation through process connection
- High temperature model and optional extension kit available

Technical data

Mode of operation

Measuring principle Rotating point level switch

Input

Measured variable High and low

Output

Output signal

- Alarm output
 - microswitch 5 A at 250 V AC, non inductive
 - microswitch SPDT contact 4 A at 30 V DC, non-inductive
- Pickup delay
 - standard (1 rpm model): approx 1.3 seconds
 - optional process applications (5 rpm model): approx. 0.26 seconds

Sensitivity

adjustable via reset force of spring or geometry of measuring vane

Rated operating conditions

Installation conditions

- Location indoor/outdoor

Ambient conditions

- Ambient temperature -20 to 60 °C (-4 to 140 °F)
- Installation category III
- Pollution degree 2

Medium conditions

- Temperature
 - standard -20 to 80 °C (-4 to 176 °F)
 - optional -20 to 220 °C (-4 to 428 °F)
- Pressure (vessel)
 - standard max. 0.5 bar (7.25 psi)
 - optional max. 10 bar (145 psi)
- Minimum material density
 - standard measuring vane
 - 100 g/l (6.25 lb/ft³) when vane and shaft covered by 10 cm (4") of material
 - 200 g/l (12.4 lb/ft³) when vane and shaft covered by more than 10 cm (4") of material
 - 35 g/l (2.19 lb/ft³) when vane and shaft covered by 10 cm (4") of material
 - 70 g/l (4.69 lb/ft³) when vane and shaft covered by more than 10 cm (4") of material
 - hinged measuring vane

Design

- Material
 - enclosure epoxy coated aluminum
 - process connection, measuring shaft and vane stainless steel
- Process connection thread 1 1/4" NPT, 1 1/2" BSP
- Degree of protection IP65/Type 4/NEMA 4
- Conduit entry 2 x M20x1.5 or 2 x 1/2" NPT

Power supply

Jumper selectable 115 V AC, ±15%, 50 to 60 Hz, 4 VA or 230 V AC, ±15%, 50 Hz, 6 VA or 24 V DC, ±15%, 2.5 W

Certificates and approvals

CSA/FM Class II, Div. 2, Groups E, F, G
ATEX II 1/2 D
CE

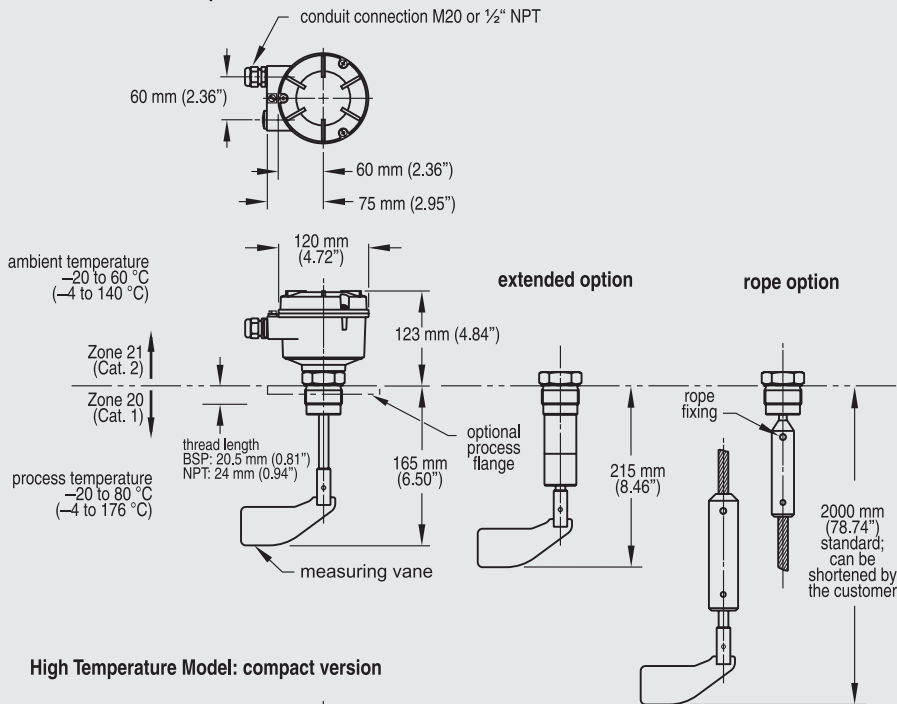
SITRANS L Level instruments

Point level measurement

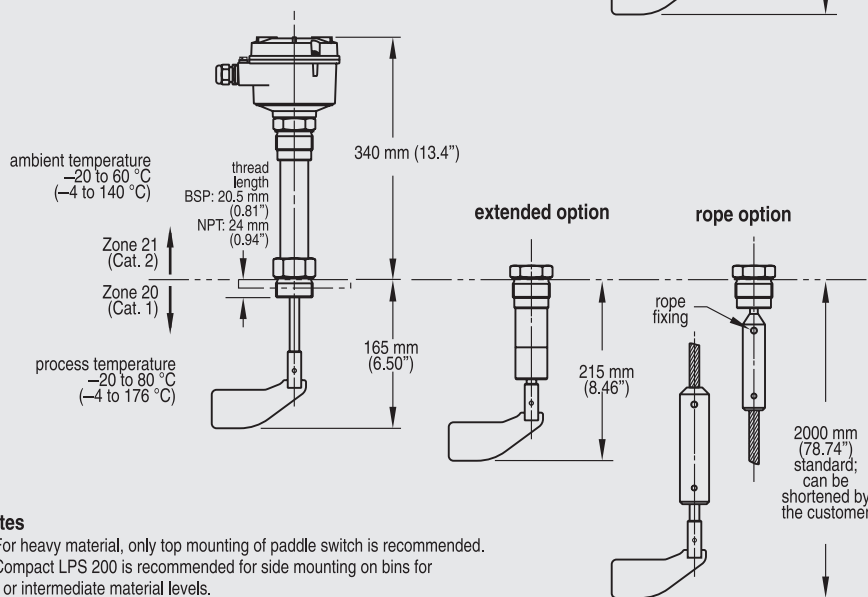
SITRANS LPS200

Dimensional drawings

Standard model: compact version



High Temperature Model: compact version

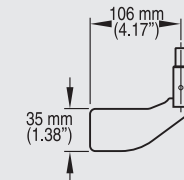


Notes

1. For heavy material, only top mounting of paddle switch is recommended.
2. Compact LPS 200 is recommended for side mounting on bins for low or intermediate material levels.

Measuring Vanes

Standard



Hinged

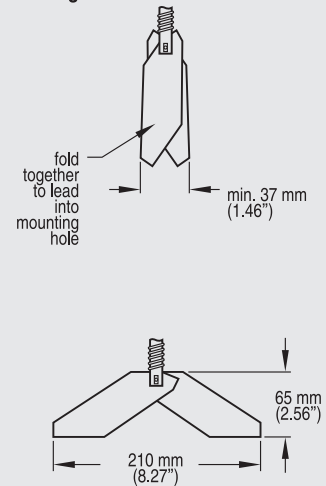


Fig. 5/3 SITRANS LPS200 dimensions

SITRANS L Level instruments

Point level measurement

SITRANS LPS200

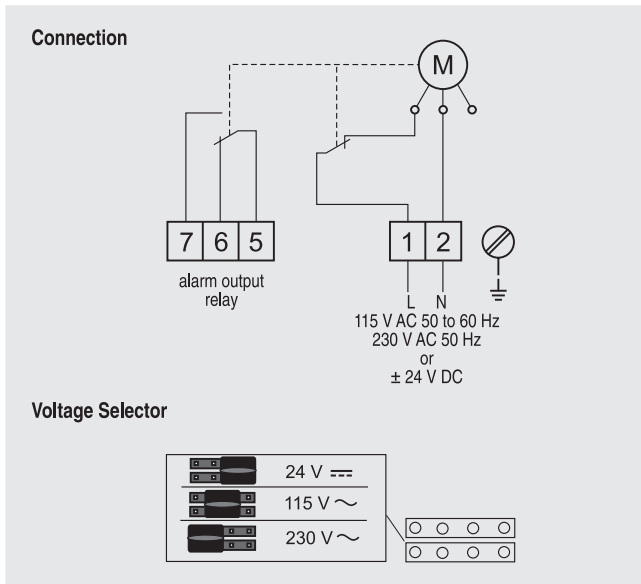


Fig. 5/4 SITRANS LPS200 connections

Ordering data

SITRANS LPS200, compact

Electro-mechanical rotary paddle switch for level detection of powder and granular solids
– Compact design for side or top mounted applications

Input voltage

switch selectable - 1 rev/min.
switch selectable - 5 rev/min.¹⁾

Process temperature

up to 80 °C (176 °F)
up to 220 °C (428 °F)¹⁾

Process pressure

up to 0.5 bar (7.25 psi) (Process temperature option A only)
up to 10 bar (145 psi)¹⁾

Process connection

1½" BSP thread
1¼" NPT thread

Process connection material

stainless steel

Extension length

standard, 165 mm (6.51")

Measuring vane

boot shaped, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")

Approvals

CSA/FM Class II, Div. 2, Groups E, F, G, Class III, ATEX II 1/2 D

Additional instruction manual

Multi-language
Note: Due to ATEX regulations, one instruction manual is shipped with every product.

Spare parts

Motor gear /PLC-multivoltage
replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")

Order No.

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Ordering data

Rod Extension Kit (for use with SITRANS LPS200 Compact, 7ML5710)

Includes spring coupling, rigid tube extension and required pins)
– Compact design for side or top mounted applications

Extension length

Extension: 500 mm, 400 mm, 300 mm
Extension: 1000 mm, 900 mm, 800 mm, 700 mm, 600 mm
Extension: 1500 mm, 1400 mm, 1300 mm, 1200 mm, 1100 mm

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Ordering data

SITRANS LPS200, extended

Electro-mechanical rotary paddle switch for level detection of powder and granular solids
– Extended design for side or top mounted applications

Input voltage

switch selectable - 1 rev/min.
switch selectable - 5 rev/min.¹⁾

Process temperature

up to 80 °C (176 °F)
up to 220 °C (428 °F)¹⁾

Process pressure

up to 0.5 bar (7.25 psi) (Process temperature option A only)
up to 10 bar (145 psi)¹⁾

Process connection

1½" BSP thread
1¼" NPT thread

Process connection material

stainless steel

Extension length

standard, 215 mm (8.46")

Measuring vane

boot shaped, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")

Approvals

CSA/FM Class II, Div. 2, Groups E, F, G, Class III, ATEX II 1/2 D

Additional instruction manual

Multi-language
Note: Due to ATEX regulations, one instruction manual is shipped with every product.

Spare parts

Motor gear /PLC-multivoltage
replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")

Order No.

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¹⁾ Non-standard item with longer lead time to delivery.

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Ordering data

SITRANS LPS200, cable extension

Electro-mechanical rotary paddle switch for level detection of powder and granular solids
– Cable extension for increased length in top-mounted applications

Input voltage

switch selectable - 1 rev/min.
switch selectable - 5 rev/min.¹⁾

Process temperature

up to 80 °C (176 °F)
up to 220 °C (428 °F)¹⁾

Process pressure

up to 0.5 bar (7.25 psi) (Process temperature option A only)
up to 10 bar (145 psi)¹⁾

Process connection

1½" BSP thread
1¼" NPT thread

Process connection material

stainless steel

Measuring vane

boot shaped, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")

Extension length

standard, 2000 mm

Cable length

Add order code Y01 and plain text: "Insertion length ... mm"

- 1000 to 2000 mm
- 2050 to 3000 mm
- 3050 to 4000 mm
- 4050 to 5000 mm
- 5050 to 6000 mm
- 6050 to 7000 mm
- 7050 to 10000 mm

Approvals

CSA/FM Class II, Div. 2, Groups E, F, G, Class III,
ATEX II 1/2 D

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 (in 50 mm [2"] increments)

Additional instruction manual

Multi-language
Note: Due to ATEX regulations, one instruction manual is shipped with every product.

Spare parts

motor gear /PLC-multivoltage
replacement vane, boot shape, 35 x 106 mm (1.38 x 4.17")
hinged vane, 65 x 210 mm (2.56 x 8.27")
cable extension kit, 2 m (78.74")

Order No.

7 M L 5 7 1 4 -

1 2 A B 2 3 1 1 2 A B C D E F G H A

5

1) Non-standard item with longer lead time to delivery.