

SITRANS L Level instruments

Point level measurement

SITRANS LVS200

Overview



The SITRANS LVS200 is an electro-mechanical vibratory switch for level detection of powder and granular solids.

Benefits

- High resistance to mechanical forces
- Strong vibration resistance to high bulk material loads
- Rotatable enclosure
- Stainless steel 1½" NPT or 1½" BSP threaded connection
- Suitable for low density material: standard version, 20 g/l (1.3 lb/ft³); liquid/solid interface version, 50 g/l (3 lb/ft³)
- Customer desired extensions up to 4000 mm (157")

Application

The standard LVS200 detects high or low levels of dry bulk solids in bins, silos or hoppers. The liquid/solid interface version can also detect settled solids within liquids or solids within confined spaces such as feed pipes. It is designed to ignore liquids in order to detect the interface between a solid and a liquid.

A pipe extension version is available with either the standard or liquid/solid interface electronics and fork, separated by a customer supplied 1" pipe.

The LVS200 has a compact design and can be top or side mounted. The vibrating fork design ensures the tines are kept clean. The unique design of the fork and crystal assembly eliminates false high level readings.

A signal from the electronic circuit excites a crystal in the probe causing the fork to vibrate. If the fork is covered by material, the change in vibration is detected by the electronic circuitry which causes the relay to change state after a one second delay. When the fork is free from material pressure, full vibration resumes and the relay reverts to its normal condition.

- Key Applications: dry bulk solids in bins, silos, hoppers or settled solids within liquids (interface version)

Technical specifications

Mode of operation

Measuring principle Vibrating point level switch

Input

Measured variable High and low

Measuring frequency

- standard 125 Hz
- liquid/solid interface version 350 Hz

Output

Output signal

- Relay delay
 - approx. 1 sec from loss of vibration
 - 1 to 2 sec from resumption of vibration
- Signal delay
 - probe uncovered to covered: approx. 1 second
 - probe covered to uncovered: approx. 1 to 2 seconds
- Relay failsafe high or low, switch selectable
- Alarm output
 - relay 8 A at 250 V AC, non-inductive
 - relay 5 A at 30 V DC, non-inductive

Sensitivity high or low, switch selectable

Rated operating conditions

Installation conditions

- Location indoor/outdoor

Ambient conditions

- Ambient temperature -40 to +60 °C (-40 to +140 °F)
- Installation category III
- Pollution degree 2

Medium conditions

- Process temperature
 - all except CSA Class II, Group G: -40 to 150 °C (-40 to 302 °F)
 - CSA Class II, Group G: -40 to +140 °C (-40 to +284 °F), CSA temperature code T3B

- Max. threaded bushing temperature 80 °C (176 °F)

- Max. enclosure surface temperature (Category 2D) 90 °C (194 °F)

- Max. extension surface temperature (Category 1D) 150 °C (302 °F)

- Pressure (vessel)
 - max. 10 bar (145 psi) European Pressure Directive 97/23/EC: Category 1

- Minimum material density
 - standard version: approx. 20 g/l (1.2 lb/ft³)
 - liquid/solid interface version: approx. 50 g/l (3 lb/ft³)

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Design

- Material
 - Enclosure Epoxy coated aluminum
- Process connection
 - thread 1½" NPT, 1½" BSP
 - optional sliding bushing with 2" NPT or BSP thread
 - thread material: stainless steel 303 (1.4305)
- Tine material
 - stainless steel 316Ti (1.4571), PTFE-coated tines are available upon special request
- Degree of protection
 - IP65/Type 4/NEMA 4
- Conduit entry
 - 2 x M20 x 1.5 or 2 x ½" NPT
- Weight
 - standard version, no extensions: approx 2.0 kg (4.4 lbs)
 - solids/liquids version, no extensions: approx. 1.9 kg (4.2 lbs)

Power supply

- 19 to 230 V AC, +10%, 50 to 60 Hz, 8 VA
- 19 to 55 V DC, +10%, 1.5 W

Certificates and approvals

- Standard Construction
 - CSA/FM Class II, Div. 2, Groups E, F, G
 - ATEX II 1/2 D
 - CE
- Pipe Extension Models
 - CE

Selection and Ordering data

Order No.

SITRANS LVS200, standard

Vibrating point level switch for high or low levels of bulk solids

7ML5720-

0 A0

Input voltage

19 to 253 V AC, 19 to 55 V DC

1

Process temperature

up to 150 °C (302 °F)

A

Process connection

- 1½" BSPT (EN 10226-1)
- 1½" NPT (ANSI/ASME B1.20.1)
- 2" BSPT (EN 10226-1) thread, sliding sleeve (min. length 500 mm)
- 2" NPT (ANSI/ASME B1.20.1), sliding sleeve (min. length 500 mm)

A

B

C

D

Extension length

standard length, 230 mm
Customer Specified Extension length
 Add order code Y01 and plain text: "Insertion length ... mm"¹⁾

11

- 300 to 500 mm
- 550 to 750 mm
- 750 to 1000 mm

12

13

14

- 1050 to 1250 mm
- 1300 to 1500 mm
- 1550 to 1750 mm

15

16

17

- 1800 to 2000 mm
- 2050 to 2250 mm
- 2300 to 2500 mm

18

21

22

- 2550 to 2750 mm
- 2800 to 3000 mm
- 3050 to 3250 mm

23

24

25

- 3300 to 3500 mm
- 3550 to 3750 mm
- 3800 to 4000 mm

26

27

28

Approvals

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

A

Further designs

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

Total insertion length (in 50 mm increments): enter the total insertion length in plain text description

Y01

Instruction manual

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

7ML1998-5FT61

Spare parts

- Replacement Electronics Module (125 Hz)
- Sliding sleeve, 2" BSP
- Sliding sleeve, 2" NPT

7ML1830-1KL
 7ML1830-1JM
 7ML1830-1JN

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Selection and Ordering data

Order No.

SITRANS LVS200, liquids/solids interface

Vibrating point level switch for interface applications

7 ML 5 7 2 2 -

1 0 A 0

Input voltage

19 to 253 V AC, 19 to 55 V DC

1

Process temperature

up to 150 °C (302 °F)

A

Process connection

1½" BSPT (EN 10226-1)

1½" NPT (ANSI/ASME B1.20.1)

2" BSPT (EN 10226-1), sliding sleeve (min. length 500 mm)

2" NPT (ANSI/ASME B1.20.1), sliding sleeve (min. length 500 mm)

A
B
C
D

Extension length

standard length, 160 mm

1 1

Customer Specified Extension length

Add order code Y01 and plain text: "Insertion length ... mm"¹⁾

- 250 to 500 mm
- 500 to 750 mm
- 750 to 1000 mm

1 2
1 3
1 4

- 1050 to 1250 mm
- 1300 to 1500 mm
- 1550 to 1750 mm

1 5
1 6
1 7

- 1800 to 2000 mm
- 2050 to 2250 mm
- 2300 to 2500 mm

1 8
2 1
2 2

- 2550 to 2750 mm
- 2800 to 3000 mm
- 3050 to 3250 mm

2 3
2 4
2 5

- 3300 to 3500 mm
- 3550 to 3750 mm
- 3800 to 4000 mm

2 6
2 7
2 8

Approvals

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

A

Further designs

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

Total insertion length (in 50 mm increments): enter the total insertion length in plain text description

Y01

Instruction manual

Multi-language

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

7ML1998-5FT61

Spare parts

Replacement Electronics Module (350 Hz)

Sliding sleeve, 2" BSP

Sliding sleeve, 2" NPT

7ML1830-1KM
7ML1830-1JM
7ML1830-1JN

Selection and Ordering data

Order No.

SITRANS LVS200, pipe extension

Vibrating point level switch for high or low levels of bulk solids or interface applications
Extended using 1" pipe extension (customer supplied)

7 ML 5 7 2 4 -

1 0 A 0

Input voltage

19 to 253 V AC, 19 to 55 V DC

1

Process temperature

up to 150 °C (302 °F)

A

Process connection

1½" BSPT (EN 10226-1)

1½" NPT (ANSI/ASME B1.20.1)

A
B

Process connection material

Stainless steel

1

Extension length

No extension (customer supplied)

1

Application type

Dry bulk solids (125 Hz)

Liquids/Solids interface (350 Hz)¹⁾

1

2

Approvals

CE

A

Instruction manual

Multi-language

Note: One instruction manual is shipped with this product.

7ML1998-5FT61

Spare parts

Replacement Electronics Module (125 Hz)

Replacement Electronics Module (350 Hz)

7ML1830-1KL
7ML1830-1KM

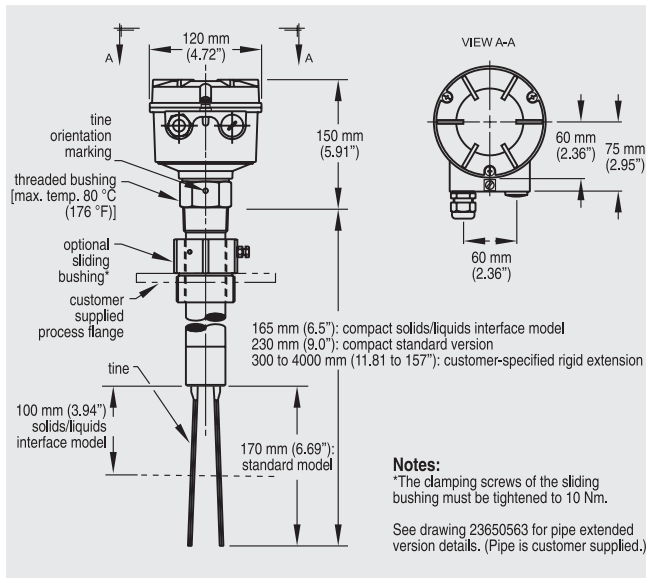
1) Non-standard item with longer lead time to delivery.

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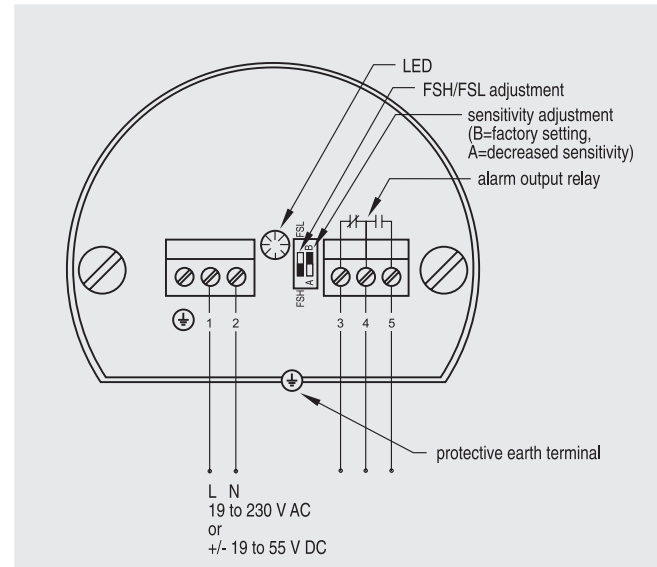
SITRANS LVS200

Dimensional drawings



SITRANS LVS200 dimensions

Schematics



SITRANS LVS200 connections