

Level Measurement

Point level measurement
Vibrating switches

SITRANS LVS100

Overview



SITRANS LVS100 is a vibrating point level switch for material detection in bulk solids.

Benefits

- High resistance to mechanical forces
- Sliding sleeve options for adjustable insertion length and ease of cleaning
- Rotatable enclosure for ease of installation and wiring
- Suitable for point level detection of materials starting at a bulk density of 30 g/l (1.9 lb/ft³)
- Customer desired extensions up to 4 000 mm (157.48 inch)

Application

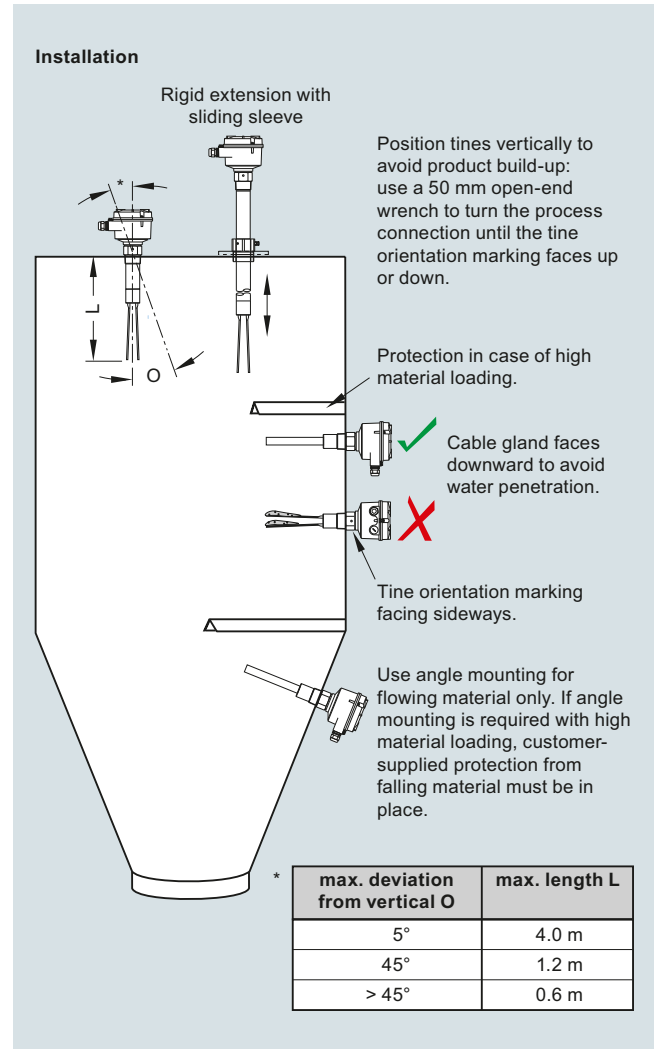
SITRANS LVS100 detects high, low or demand levels of dry bulk solids in bins, silos or hoppers.

SITRANS LVS100 has a compact design and can be top, side, or angle 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 even if tines become damaged.

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

Configuration



SITRANS LVS100 installation, dimensions in mm (inch)

Technical specifications

Mode of Operation		Design	
Measuring principle	Vibrating point level switch	Material	Epoxy coated aluminum
Input		• Enclosure	
Measured variable	High, low and demand	Process connection	<ul style="list-style-type: none"> Thread 1¼" NPT [(Taper), ANSI/ASME B1.20.1], R 1½" [(BSPT), EN 10226] Thread R 1½" [(BSPT), EN 10226], ½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)] Thread material: stainless steel 304 (1.4301) or 316L (1.4404) depending on configuration
Measuring frequency	200 Hz		
Output			
Relays	DPDT relay	Tine material	Stainless steel 316L (1.4404)
Relay delay	From loss of vibration: approximately 1 second From resumption of vibration: approximately 1 ... 2 s	Degree of protection	IP66/Type 4/NEMA 4
Signal delay	Probe uncovered to covered: approximately 1 s Probe covered to uncovered: approximately 1 ... 2 s	Conduit entry	2 x M20 x 1.5 or 2 x ½" NPT (For FM and CSA approved versions only.)
Relay fail-safe	High or low, switch selectable	Weight	Standard version, no extensions: approx. 1.7 kg (3.7 lb)
Alarm output	Relay 8 A at 250 V AC, non-inductive Relay 5 A at 30 V DC, non-inductive	Power supply	<ul style="list-style-type: none"> 19 ... 230 V AC, +10 %, 50 ... 60 Hz, 8 VA 19 ... 40 V DC, +10 %, 1.5 W
Sensitivity		Certificates and approvals	
High or low, switch selectable		<ul style="list-style-type: none"> CSA/FM General Purpose CE CSA/FM Dust Ignition Proof RCM ATEX II 1/2 D IECex 	
Rated operating conditions			
Installation conditions			
• Location	Indoor/outdoor		
Ambient conditions			
• Ambient temperature	-40 ... +60 °C (-40 ... +140 °F)		
• Installation category	III		
• Pollution degree	2		
Medium conditions			
• Process temperature	-40 ... +150 °C (-40 ... +302 °F)		
• 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 g (145 psi g) European Pressure Directive 2014/68/ EU: Category 1		
Minimum material density	Approx. 30 g/l (1.9 lb/ft ³)		

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SITRANS LVS100

Selection and Ordering data

SITRANS LVS100, standard

Vibrating point level switch for high or low level detection of bulk solids. Sensitivity > 30 g/l.

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

Input Voltage

DPDT Relay: 19 ... 230 V AC, 19 ... 40 V DC

DPDT Relay: 19 ... 230 V AC, 19 ... 40 V DC (stocked version)¹⁾³⁾

Process temperature

Up to 150 °C (302 °F)

Process connection

Threaded

R 1½" [(BSPT), EN 10226]

1¼" NPT [(Taper), ANSI/ASME B1.20.1]

R 1½" [(BSPT), EN 10226] DIN 2999 thread, sliding sleeve [min. length 500 mm (19.69 inch)]²⁾

1½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)]²⁾

Extension length

Stainless steel 316L (1.4404)

Standard length, 170 mm (6.69 inch)

Add Order code Y01 and plain text:

"Insertion length ... mm"

Stainless steel 304 (1.4301)

- 230 ... 500 mm (9.05 ... 19.69 inch) 12
- 501 ... 1 000 mm (19.72 ... 39.37 inch) 13
- 1 001 ... 1 500 mm (39.41 ... 59.06 inch) 14
- 1 501 ... 2 000 mm (59.09 ... 78.74 inch) 15
- 2 001 ... 2 500 mm (78.78 ... 98.43 inch) 16
- 2 501 ... 3 000 mm (98.46 ... 118.11 inch) 17
- 3 001 ... 3 500 mm (118.15 ... 137.80 inch) 18
- 3 501 ... 4 000 mm (137.83 ... 157.48 inch) 20

Approvals

CSA/FM General Purpose, CE, RCM

CSA/FM Class II, Div. 1, Group E, F, G, Class III,

ATEX II 1/2 D, RCM

IEC-Ex Ex t IIIC T-- Da/Db IP6X

EAC Ex ta/tb IIIC Da/Db

Article No.

7ML5735-

■■■■■ - 0 ■ A 0

1

2

A

A

B

C

D

11

12

13

14

15

16

17

18

20

A

B

C

D

Selection and Ordering data

Further Designs

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

Total insertion length: Enter the total insertion length in plain text description, max. (50 mm increments)

Signal bulb inserted in M20 cable gland¹⁾

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>

Spare Parts

Replacement Electronics Module LVS100 DPDT Relay (19 ... 253 V AC, 19 ... 55 V DC)

R 1½" [(BSPT), EN 10226] DIN 2999 thread, sliding sleeve

1½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)]

¹⁾ Available only with Approval option A

Order code

Y01

A20

Article No.

7ML19985FT63

7ML1830-1NS

7ML1830-1NT

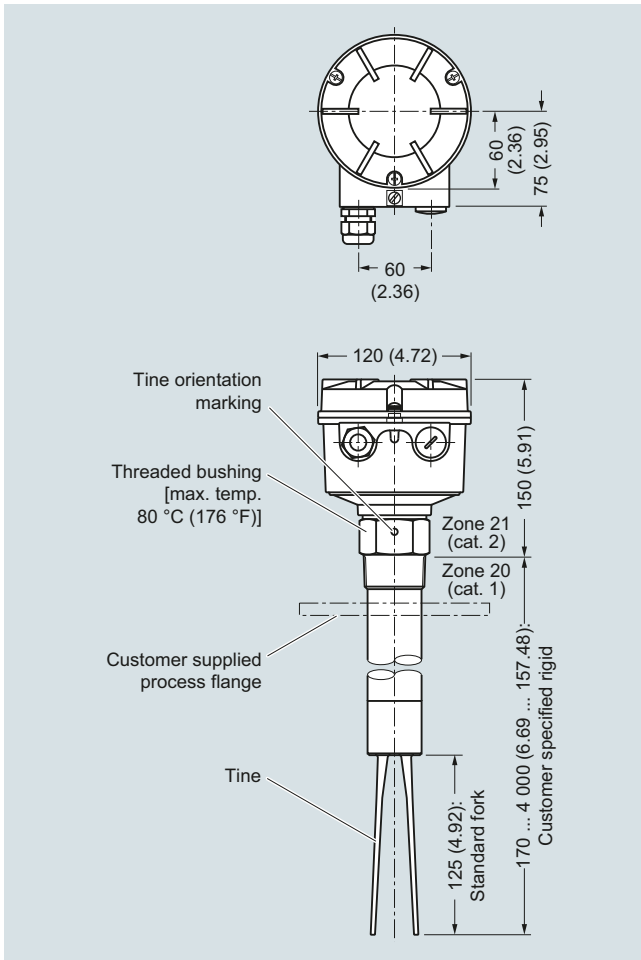
7ML1830-1NU

¹⁾ Only available with the following configurations 7ML5735-2AA11-0AA0 or 7ML5735-2AB11-0AA0

²⁾ Not available with extension length options 11, 12

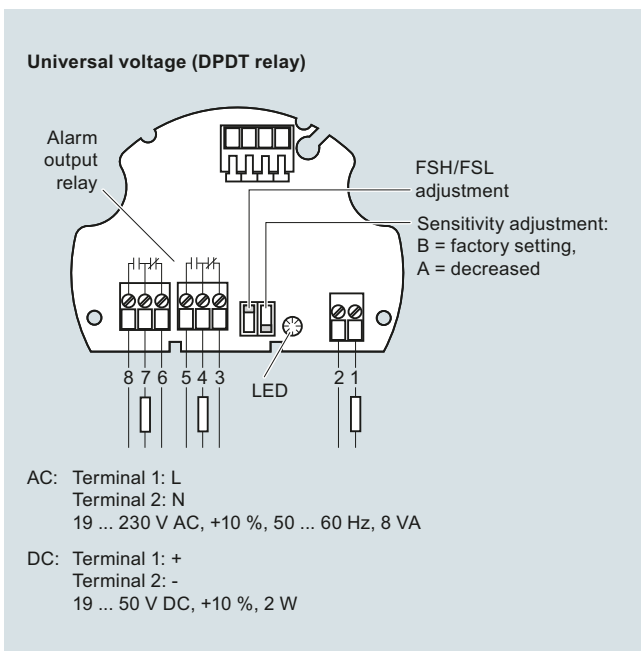
³⁾ Input voltage 2 not allowed with extension length 16,17,18 or 20

Dimensional drawings



SITRANS LVS100, dimensions in mm (inch)

Circuit diagrams



SITRANS LVS100 connections