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/ft^3)
- 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.

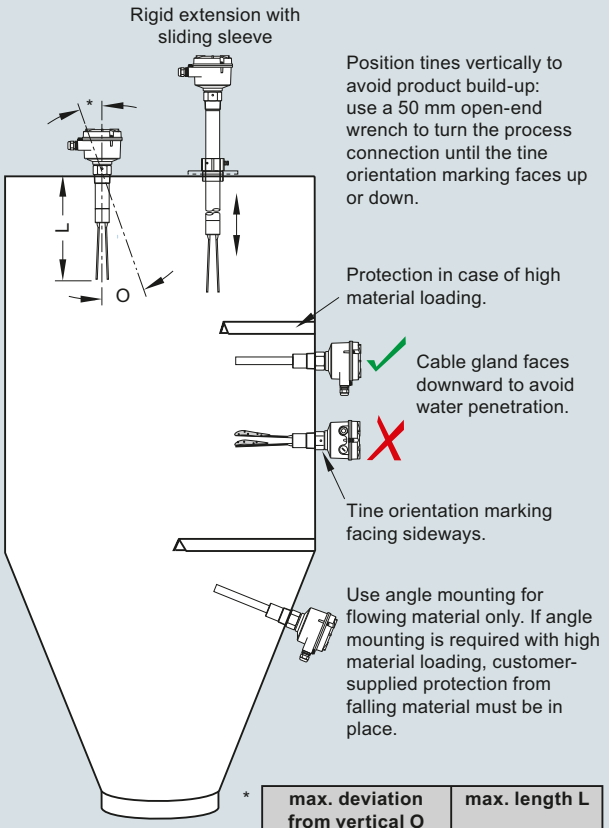
SITRANS LVS100 has a compact design and can be top, side, or angle mounted. The vibrating fork design ensures the tines are kept clean. The unique design of the fork and crystal assembly eliminates false high level readings even if tines become damaged.

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

Installation



* max. deviation from vertical O	max. length L
5°	4.0 m
45°	1.2 m
> 45°	0.6 m

SITRANS LVS100 installation, dimensions in mm (inch)

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Technical specifications

Mode of Operation	
Measuring principle	Vibrating point level switch
Input	
Measured variable	High, low and demand
Measuring frequency	200 Hz
Output	
Relays	DPDT relay
Relay delay	From loss of vibration: approximately 1 second
	From resumption of vibration: approximately 1 ... 2 s
Signal delay	Probe uncovered to covered: approximately 1 s
	Probe covered to uncovered: approximately 1 ... 2 s
Relay fail-safe	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 ... +60 °C (-40 ... +140 °F)
• Storage temperature	-40 ... +80 °C (-40 ... +176 °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)

Design	
Material	
• Enclosure	Epoxy coated aluminum
Process connection	• 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
Tine material	Stainless steel 316L (1.4404)
Degree of protection	IP66/Type 4/NEMA 4
Conduit entry	2 x M20 x 1.5 or 2 x ½" NPT (For FM and CSA approved versions only.)
Weight	Standard version, no extensions: approx. 1.7 kg (3.7 lb)
Power supply	• 19 ... 230 V AC, +10 %, 50 ... 60 Hz, 8 VA • 19 ... 40 V DC, +10 %, 1.5 W
Certificates and approvals	• CSA/FM General Purpose • CE • CSA/FM Dust Ignition Proof • RCM • ATEX II 1/2 D • IECex

Selection and ordering data

	Article No.
SITRANS LVS100 Vibrating fork point level switch ↗	**7ML5735-**
Level and material detection for dry bulk solids. Extension options to 4 m (13.12 ft).	■ ■ ■ ■ ■ - **0** ■ **A 0**
↗ 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	**1**
DPDT Relay: 19 ... 230 V AC, 19 ... 40 V DC (stocked version)[1)3)]	**2**
Process temperature	
Up to 150 °C (302 °F)	**A**
Process connection	
Threaded	
R 1½" [(BSPT), EN 10226]	**A**
1¼" NPT [(Taper), ANSI/ASME B1.20.1]	**B**
R 1½" [(BSPT), EN 10226] DIN 2999 thread, sliding sleeve [min. length 500 mm (19.69 inch)][2)]	**C**
1½" NPT [(Taper), ANSI/ASME B1.20.1] , sliding sleeve [min. length 500 mm (19.69 inch)][2)]	**D**
Extension length	
Stainless steel 316L (1.4404)	
Standard length, 170 mm (6.69 inch)	**1 1**
Add Order code Y01 and plain text: "Insertion length ... mm"	
Stainless steel 304 (1.4301)	
230 ... 500 mm (9.05 ... 19.69 inch)	**1 2**
501 ... 1 000 mm (19.72 ... 39.37 inch)	**1 3**
1 001 ... 1 500 mm (39.41 ... 59.06 inch)	**1 4**
1 501 ... 2 000 mm (59.09 ... 78.74 inch)	**1 5**
2 001 ... 2 500 mm (78.78 ... 98.43 inch)	**1 6**
2 501 ... 3 000 mm (98.46 ... 118.11 inch)	**1 7**
3 001 ... 3 500 mm (118.15 ... 137.80 inch)	**1 8**
3 501 ... 4 000 mm (137.83 ... 157.48 inch)	**2 0**
Approvals	
CSA/FM General Purpose, CE, RCM	**A**
CSA/FM Class II, Div. 1, Groups E, F, G, Class III, ATEX II ½ D, RCM	**B**
IEC-Ex Ex t IIIC T-- Da/Db IP6X	**C**
EAC Ex ta/tb IIIC Da/Db	**D**

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

2) Not available with extension length options 11 and 12.

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

	Order code
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)	**Y01**
Signal bulb inserted in M20 cable gland[1)]	**A20**
Factory test certificate - M to DIN 55350, Part 18	**C11**
Operating Instructions	
All literature is available to download for free, in a range of languages, at	
http://www.siemens.com/processinstrumentation/documentation	
Spare Parts	Article No.
Replacement Electronics Module LVS100 DPDT Relay (19 ... 253 V AC, 19 ... 55 V DC)	**7ML1830-1NS**
R 1½" [(BSPT), EN 10226] DIN 2999 thread, sliding sleeve	**7ML1830-1NT**
1½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)]	**7ML1830-1NU**

1) Available only with Approval option A.

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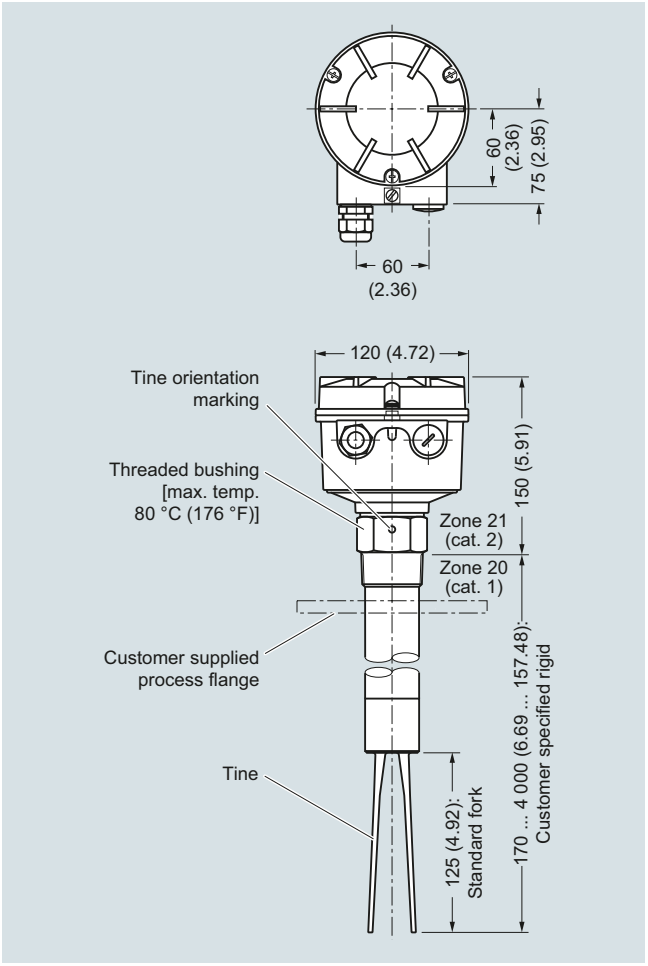
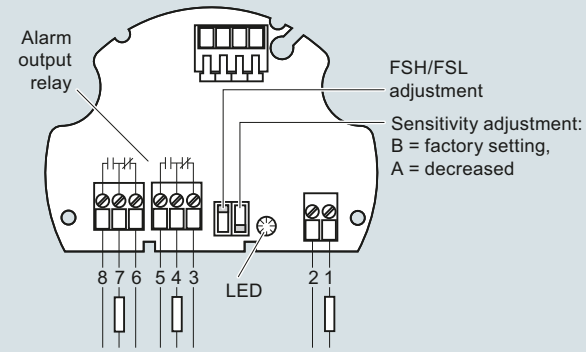
Dimensional drawings



SITRANS LVS100, dimensions in mm (inch)

Circuit diagrams

Universal voltage (DPDT relay)



AC: Terminal 1: L
Terminal 2: N
19 ... 230 V AC, +10 %, 50 ... 60 Hz, 8 VA

DC: Terminal 1: +
Terminal 2: -
19 ... 50 V DC, +10 %, 2 W

SITRANS LVS100 connections