

## 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/ft<sup>3</sup>)
- Customer desired extensions up to 4 000 mm (157.48 inch)

##### Application

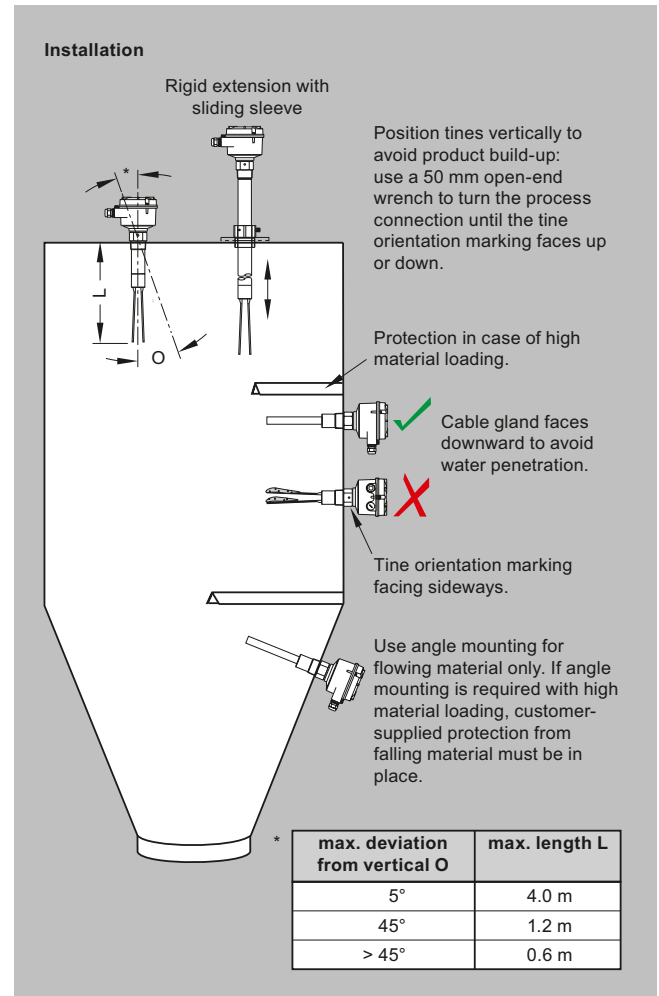
SITRANS LVS100 detects high, low or demand levels of dry bulk solids in bins, silos or hoppers.

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)

### Selection and ordering data

	Article No.										
<b>SITRANS LVS100 Vibrating fork point level switch Level and material detection for dry bulk solids. Extension options to 4 m (13.12 ft).</b>	7	M	L	5	7	3	5	-	0	A	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
<b>Input Voltage</b>											
DPDT Relay: 19 ... 230 V AC, 19 ... 40 V DC	1										
DPDT Relay: 19 ... 230 V AC, 19 ... 40 V DC (stocked version) <sup>1)3)</sup>	2										
<b>Process temperature</b>											
Up to 150 °C (302 °F)										A	
Process connection											
<b>Threaded</b>											
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)] <sup>2)</sup>										C	
1½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)] <sup>2)</sup>										D	
<b>Extension length</b>											
<b>Stainless steel 316L (1.4404)</b>											
Standard length, 170 mm (6.69 inch)							1	1			
Add Order code Y01 and plain text: "Insertion length ... mm"											
<b>Stainless steel 304 (1.4301)</b>											
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			
<b>Approvals</b>											
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	

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

<sup>2)</sup> Not available with extension length options 11 and 12.

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

Selection and Ordering data	Order code
<b>Further Designs</b>	
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 <sup>1)</sup>	A20
Factory test certificate - M to DIN 55350, Part 18	C11

<sup>1)</sup> Available only with Approval option A.

Spare Parts	Article No.
<b>Operating Instructions</b>	
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	
<b>Spare Parts</b>	
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

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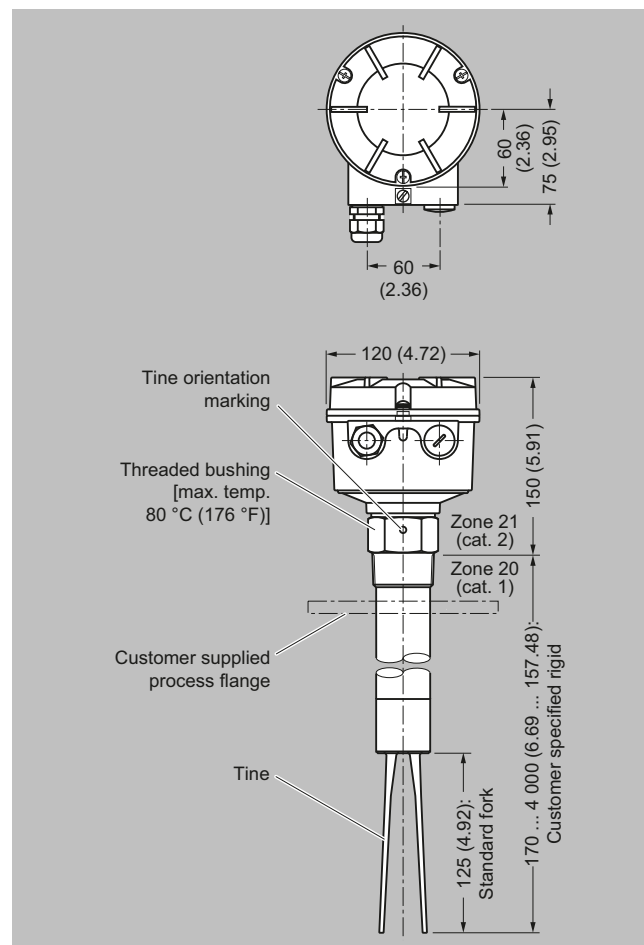
#### Technical specifications

SITRANS LVS100	
<b>Mode of Operation</b>	
Measuring principle	Vibrating point level switch
<b>Input</b>	
Measured variable	High, low and demand
Measuring frequency	200 Hz
<b>Output</b>	
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
<b>Sensitivity</b>	High or low, switch selectable
<b>Rated operating conditions</b>	
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/ft³)
<b>Design</b>	
Material	
• Enclosure	Epoxy coated aluminum
Process connection	<ul style="list-style-type: none"> <li>• Thread 1/4" NPT [(Taper), ANSI/ASME B1.20.1], R 1/2" [(BSPT), EN 10226]</li> <li>• Thread R 1/2" [(BSPT), EN 10226], 1/2" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69 inch)]</li> <li>• Thread material: stainless steel 304 (1.4301) or 316L (1.4404) depending on configuration</li> </ul>
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 1/2" NPT (For FM and CSA approved versions only.)
Weight	Standard version, no extensions: approx. 1.7 kg (3.7 lb)
<b>Power supply</b>	<ul style="list-style-type: none"> <li>• 19 ... 230 V AC, +10 %, 50 ... 60 Hz, 8 VA</li> <li>• 19 ... 40 V DC, +10 %, 1.5 W</li> </ul>
<b>Certificates and approvals</b>	<ul style="list-style-type: none"> <li>• CSA/FM General Purpose</li> <li>• CE</li> <li>• CSA/FM Dust Ignition Proof</li> <li>• RCM</li> <li>• ATEX II 1/2 D</li> </ul>

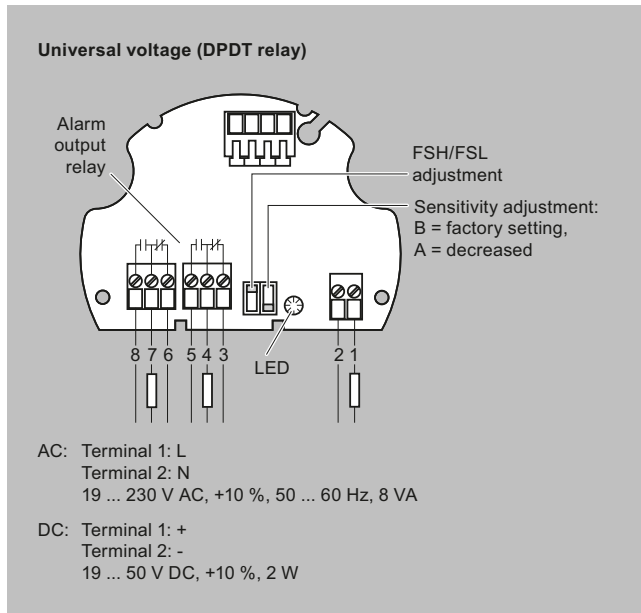
#### Technical specifications (continued)

SITRANS LVS100	
	• IECEx

#### Dimensional drawings



SITRANS LVS100, dimensions in mm (inch)

**Circuit diagrams**


SITRANS LVS100 connections