

Level Measurement

Point level measurement - Vibrating switches

SITRANS LVS100

Overview



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

Benefits

- High resistance to mechanical forces
- Strong resistance to external vibrations
- Rotatable enclosure for ease of installation and wiring
- Suitable for point level detection of materials starting at a bulk density of 60 g/l (3.8 lb/ft³)
- Customer desired extensions up to 2000 mm (78.74")

Application

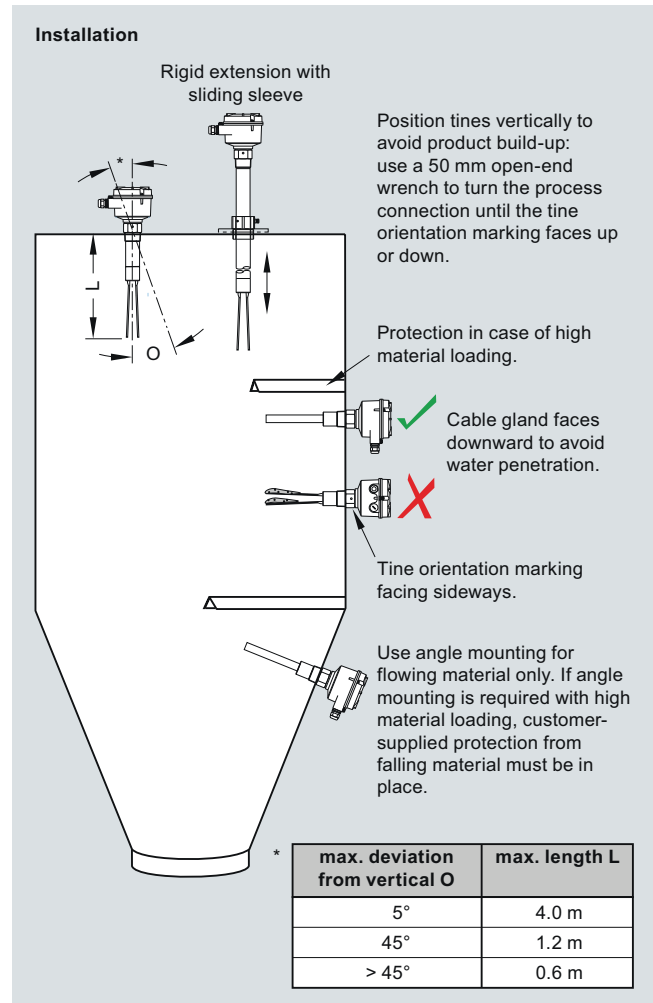
SITRANS LVS100 detects high, low or demand levels of dry bulk solids in bins, silos or hoppers.

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

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Technical specifications

Mode of Operation		Power supply	<ul style="list-style-type: none">• 19 ... 230 V AC, +10 %, 50 ... 60 Hz, 8 VA• 19 ... 50 V DC, +10 %, 1.5 W
Measuring principle	Vibrating point level switch	Certificates and approvals	<ul style="list-style-type: none">• CSA/FM General Purpose• CE• CSA/FM Dust Ignition Proof• C-TICK• ATEX II 1/2 D
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 seconds		
Signal delay	Probe uncovered to covered: approximately 1 second Probe covered to uncovered: approximately 1 ... 2 seconds		
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)		
• Installation catagory	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 97/23/EC: Category 1		
Minimum material density	approx. 60 g/l (3.8 lb/ft ³)		
Design			
Material			
• Enclosure	Epoxy coated aluminum		
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")]• Thread material: stainless steel 304 (1.4301) or 316TI (1.4571) depending on configuration		
Tine material	Stainless steel 316TI (1.4571)		
Degree of protection	IP66/Type 4/NEMA 4		
Conduit entry	2 x M20x1.5 or 2 x ½" NPT		
Weight	Standard version, no extensions: approx 1.7 kg (3.7 lbs)		

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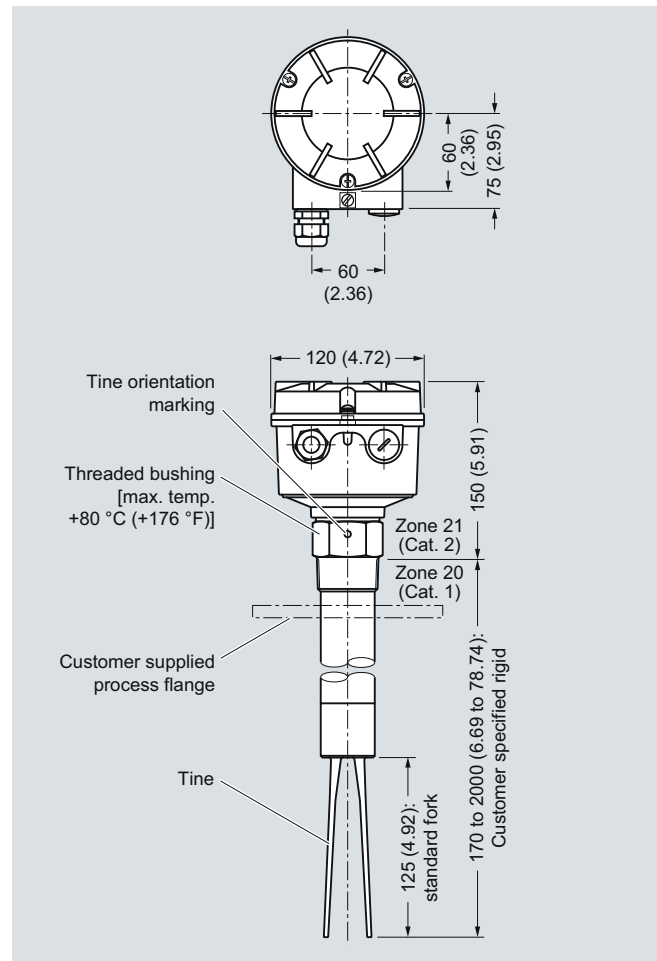
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Selection and Ordering data	Order No.
SITRANS LVS100, standard Vibrating point level switch for high or low level detection of bulk solids Sensitivity > 60 g/l.	7ML5735-
Input Voltage DPDT Relay - 19 ... 230 V AC, 19 ... 50 V DC	1
Process temperature up to +150 °C (+302 °F)	A
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") 1½" NPT [(Taper), ANSI/ASME B1.20.1], sliding sleeve [min. length 500 mm (19.69")]	A B C D
Extension length <u>Stainless steel 316Ti (1.4571)</u> Standard length, 170 mm (6.69") <u>Add order code Y01 and plain text:</u> "Insertion length ... mm" <u>Stainless steel 304 (1.4301)</u> • 300 ... 500 mm (11.81 ... 19.69") • 501 ... 1000 mm (19.72 ... 39.37") • 1001 ... 1500 mm (39.41 ... 59.06") • 1501 ... 2000 mm (59.09 ... 78.74")	11 12 13 14 15
Approvals CSA/FM General Purpose, CE, C-TICK CSA/FM Class II, Div. 1, Group E,F, G, Class III, ATEX II 1/2 D, C-TICK	A B

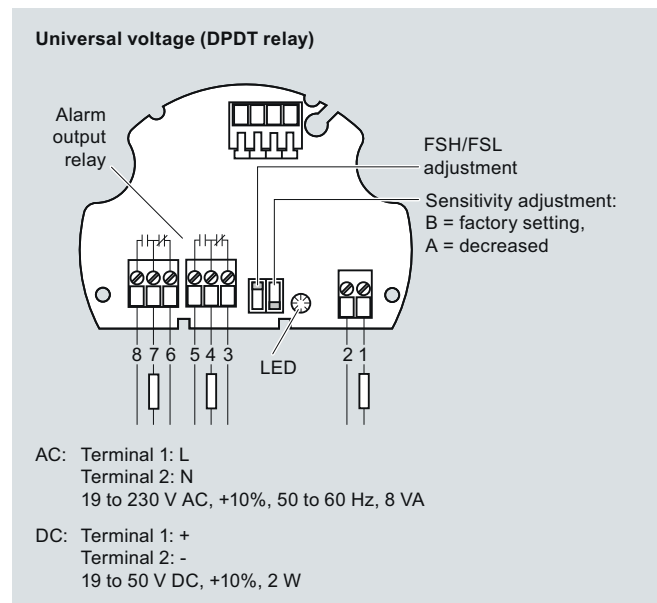
Selection and Ordering data	Order code
Further Designs Please add "-Z" to Order No. and specify Order code(s).	
Total insertion length: Enter the total insertion length in plain text description, max. 2000 mm (78.74")	Y01
Signal bulb inserted in M20 cable gland	A20
Operating Instructions Multi-language This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	Order No. 7ML1998-5FT63
Spare Parts Replacement Electronics Module LVS100 DPDT Relay (19 to 253 V AC, 19 to 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")]	7ML1830-1NS 7ML1830-1NT 7ML1830-1NU

Dimensional drawings



SITRANS LVS100, dimensions in mm (inch)

Schematics



SITRANS LVS100 connections