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Overview

SITRANS LVL100 is a compact vibrating level switch for material detection in liquid and slurry applications such as overflow, high, low and demand applications, as well as pump protection. It is ideal for use in confined spaces.

Benefits

- Proven vibrating level switch technology for liquids
- Compact insertion length of 40 mm (1.57 inch) for confined space applications
- Available starting at 1/2" threaded process connections
- Fault monitoring for corrosion, loss of vibration, or line break to the piezo drive
- Integrated test function to confirm correct operation

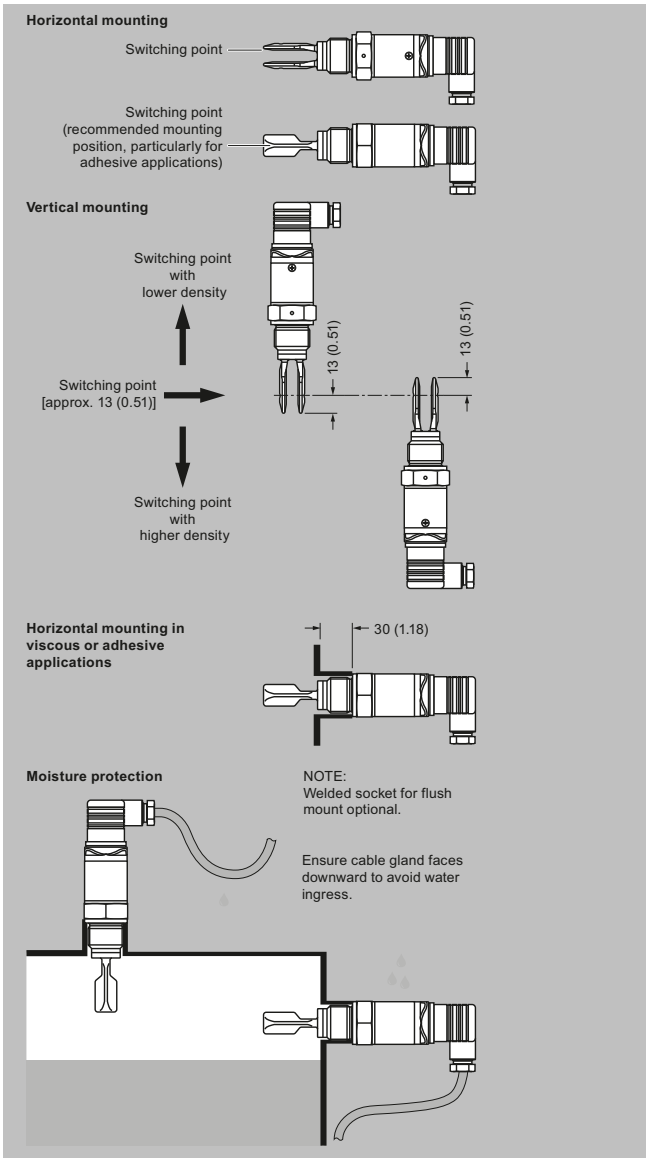
Application

SITRANS LVL100 is a compact level switch designed for industrial use in all areas of process technology and can be used for material detection with liquids and slurries. With an insertion length of only 40 mm (1.57 inch), SITRANS LVL100 can be mounted in small pipes and confined space applications. It is virtually unaffected by the chemical and physical properties of the liquid. The LVL100 can be used in difficult conditions including turbulence, air bubbles, foam generation, buildup, or external vibration.

The tuning fork is piezoelectrically energized and vibrates at a mechanical resonance frequency of approximately 1 200 Hz. The vibration frequency changes when the tuning fork is covered by the medium. This change is detected by the integrated oscillator and converted into a switching command. The integrated electronics evaluate the level signal and output a switching signal to connected devices.

- Key Applications: for use in liquids and slurries, for level measurement, overfill, and dry run protection

Configuration



SITRANS LVL100 installation, dimensions in mm (inch)

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Selection and ordering data

SITRANS LVL100 Vibrating point level switch Detects level and material in liquids and slurries. Compact, with 40 mm (1.6 inch) insertion.	Article No. 7ML5745-	●	●	●	●	●	-	●	●	A	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.											
Approvals											
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA		1									
CE, UKCA, Marine Approvals (ABS, CCS, DNV-GL, LR, RINA)[5]		2									
CE, UKCA, Overfill Protection (WHG)[1]		3									
Canada/US for Ordinary Locations/General Purpose (Non-Ex), CE, UKCA[7]		4									
Version/Process temperature											
Standard -40 ... +100 °C (-40 ... +212 °F)[2]			A								
Extended -40 ... +150 °C (-40 ... +302 °F)[2][6]			B								
Hygienic applications -40 ... +150 °C (-40 ... +302 °F)[3]			C								
Process connection											
Thread G¾" A PN 64/316L				A	0						
Thread G¾" A PN 64/316L Ra < 0.8 µm				A	1						
Thread ¾" NPT PN 64/316L				A	2						
Thread ¾" NPT PN 64/316L Ra < 0.8 µm				A	3						
Thread G1" A PN 64/316L				A	4						
Thread G1" A PN 64/316L Ra < 0.8 µm				A	5						
Thread 1" NPT PN 64/316L				A	6						
Thread 1" NPT PN 64/316L Ra < 0.8 µm				A	7						
Tri-Clamp 1" PN 16 DIN 32676/316L Ra < 0.8 µm				A	8						
Tri-Clamp 1½" PN 16 DIN 32676/316L Ra < 0.8 µm				B	0						
Tri-Clamp 2" PN 16 DIN 32676/316L Ra < 0.8 µm				B	1						
Bolting DN 25 PN 40 DIN 11851/316L Ra < 0.8 µm				B	2						
Bolting DN 40 PN 40 DIN 11851/316L Ra < 0.8 µm				B	3						
Bolting DN 50 PN 25 DIN 11851/316L Ra < 0.8 µm				B	4						
SMS DN 38 PN 6 316L Ra < 0.8 µm				B	5						
Hygienic fitting with compression nut F40 PN 25/316L Ra < 0.8 µm				B	6						
Thread G½" (DIN 3852-A) PN 64/316L				C	0						
Thread G½" (DIN 3852-A) PN 64/316L Ra < 0.8 µm				C	1						
Thread ½" NPT (ASME B1.20.1) PN 64/316L				C	2						
Thread ½" NPT (ASME B1.20.1) PN 64/316L Ra < 0.8 µm				C	3						
Thread R¾" PN 64, EN 10226-1/316L				D	0						
R1 Thread R1 PN 64, EN 10226-1/316L				D	1						
RF Thread R1 PN 64, EN 10226-1/316L (Ra < 0.8 µm)				D	2						
Electronics											
Contactless electronic switch 20 ... 250 V AC/DC[4]						1					
Transistor output PNP 10 ... 35 V DC						2					
I/O link 18 ... 30 V DC						3					
Housing											
316L								1			
Electrical connection/Protection											
M12 x 1/IP67									A		
According to ISO4400 including plug/IP65									B		
According to DIN 43650 incl. plug with QuickOn connection/IP65									C		
M12 x 1 incl. 5 m cable/IP68 (0.2 bar)									D		

1) Available only with Electronics option 2.
2) Available only with Process connection options A0, A2, A4, A6, C0, C2, D0, and D1.
3) Available only with Process connection options A1, A3, A5, and A7 ... B6, C1, C3, and D2.
4) Available only with Electrical connection/Protection options B and C.
5) Available only with Process temperature options A and B.
6) Available only with Marine approval options DNV and GL.
7) Available only with Electrical connection/Protection options A and B.

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Selection and ordering data (continued)

Selection and ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Cleaning including certificate (oil, grease and silicone free)	**W01**
Identification Label, foil laser marking	**Y16**
Acceptance test Certificate 2.2 for material EN 10204	**C15**
3.1-Inspection Certificate for instrument with test data (EN 10204)	**C25**

Selection and ordering data	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation.	
Spare Parts	
LVL100 Threaded Welded Socket	
G¾" A/316L with FKM Seal	**7ML1930-1EE**
G1" A/316L with FKM Seal	**7ML1930-1EF**
M27 x 1.5/316L with FKM Seal	**7ML1930-1EG**
G¾" A/316L with EPDM Seal	**7ML1930-1EH**
G1" A/316L with EPDM Seal	**7ML1930-1EJ**
M27 x 1.5/316L with EPDM Seal	**7ML1930-1EK**

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Technical specifications

SITRANS LVL100	
Mode of operation	
Measuring principle	Vibrating point level switch
Input	
Measured variable	High and low and demand
Output	
Output options	• Contactless electronic switch • Transistor output PNP
Measuring accuracy	
Hysteresis	Approx. 2 mm (0.08 inch) with vertical installation
Switching delay	Approx. 500 ms (on/off)
Frequency	Approx. 1 100 Hz
Rated operating conditions	
Installation conditions	
• Location	Indoor/outdoor
Ambient conditions	
• Ambient temperature	-40 ... +70 °C (-40 ... +158 °F)
• Storage temperature	-40 ... +80 °C (-40 ... +176 °F)
• Installation category	III
• Pollution degree	2
Medium conditions	
• Temperature	
- Standard	-40 ... +100 °C (-40 ... +212 °F)
- High temperature option	-40 ... +150 °C (-40 ... +302 °F)
• Pressure (vessel)	-1 ... 64 bar g (-14.5 ... 928 psi g)
• Density	0.7 ... 2.5 g/cm³ (0.025 ... 0.09 lb/in³)
Design	
Material	
• Enclosure	316L and Plastic PEI
• Tuning fork	316L (1.4404 or 1.4435)
• Process connection (threaded)	316L (1.4404 or 1.4435)
• Process seal	Klingersil C-4400
Process connection	
• Pipe thread, cylindrical (ISO 228 T1)	G ½" A, G ¾" A, or G 1" A
• Pipe thread, tapered	½" NPT, ¾" NPT, or 1" NPT
• Hygienic fittings	Bolting DN 40 PN 40 Tri-clamp 1", 1½", 2" PN 10
Degree of protection	IP65/Type 4/NEMA 4 (with DIN 43650 valve plug), IP66/67 or IP68 (with M12 connector)
Conduit entry	1 x M12 [IP66/IP67 or IP68 (0.2 bar)]
Weight (housing)	250 g (9 oz)
Power supply	
Supply voltage	20 ... 253 V AC, 50/60 Hz 20 ... 253 V DC
Power consumption	Max. 0.5 W
Certificates and approvals	• Overfill protection (WHG) • Marine approvals (ABS, CCS, DNV-GL, LR, RINA)

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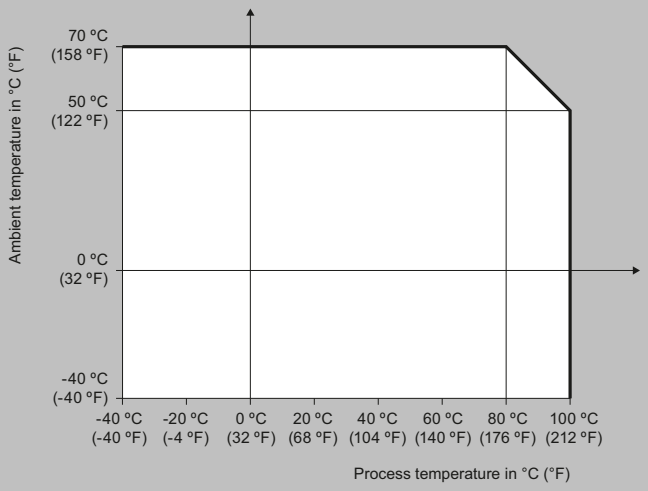
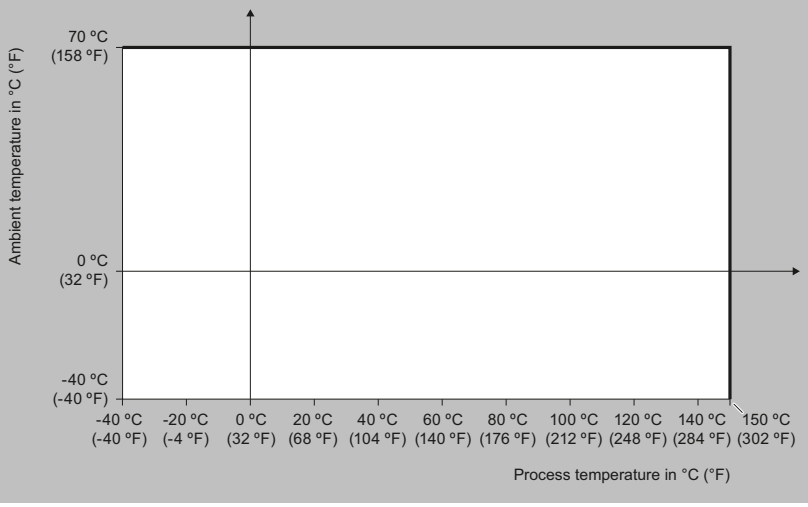
Characteristic curves

Ambient temperature to process temperature dependency (standard version)



Ambient temperature to process temperature dependency (high temperature version)



SITRANS LVL100 ambient temperature/process temperature derating curves

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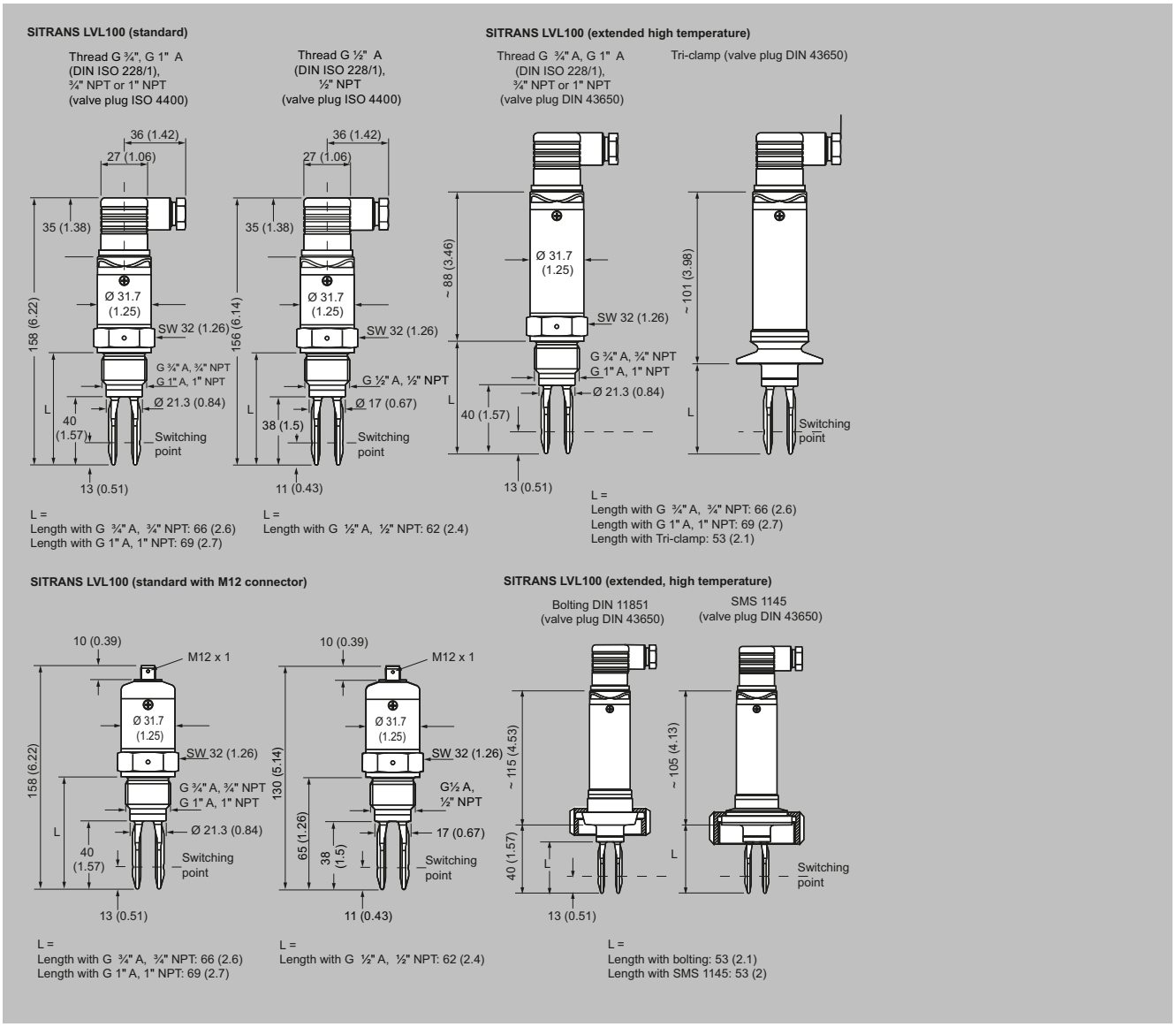
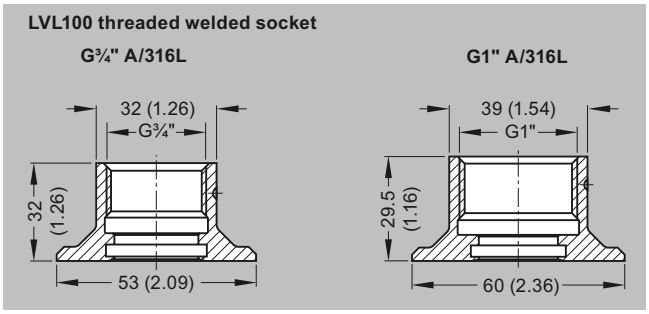
Dimensional drawings



SITRANS LVL100, dimensions in mm (inch)



SITRANS LVL100 welded socket, dimensions in mm (inch)

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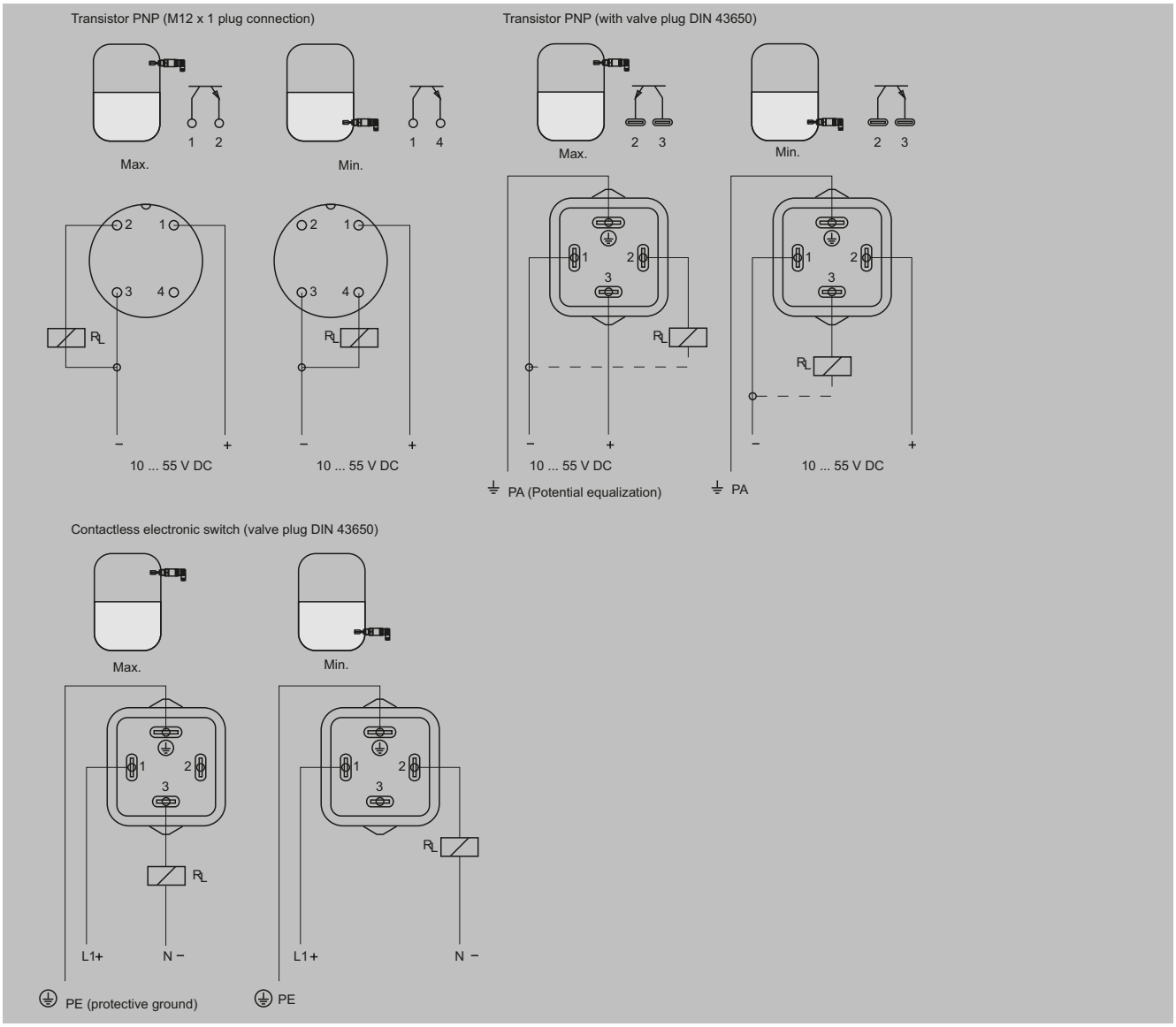
Circuit diagrams



SITRANS LVL100 connections

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