Overview

SITRANS LVL200 is a standard vibrating level switch for material detection in liquid and slurry applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 applications.

Benefits

- Proven vibrating level switch technology for liquids
- Compact insertion length of 40 mm (1.57 inch) for confined space applications
- Fault monitoring for corrosion, loss of vibration or line break to the piezo drive
- Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511
- Hygienic process connections
- Suitable for API 2350
- Optional remote test signal conditioner

Application

SITRANS LVL200 is a level switch designed for industrial use in all areas of process technology and can be used with liquids and slurries. With a tuning fork insertion length of only 40 mm (1.57 inch), SITRANS LVL200 can be mounted in small pipes and applications with confined space. The LVL200 can be used to measure products with a minimum density of > 0.5 g/cm³ (0.018 lb/in³). The LVL200 can be used in difficult conditions including turbulence, air bubbles, foam generation, buildup, or external vibration.

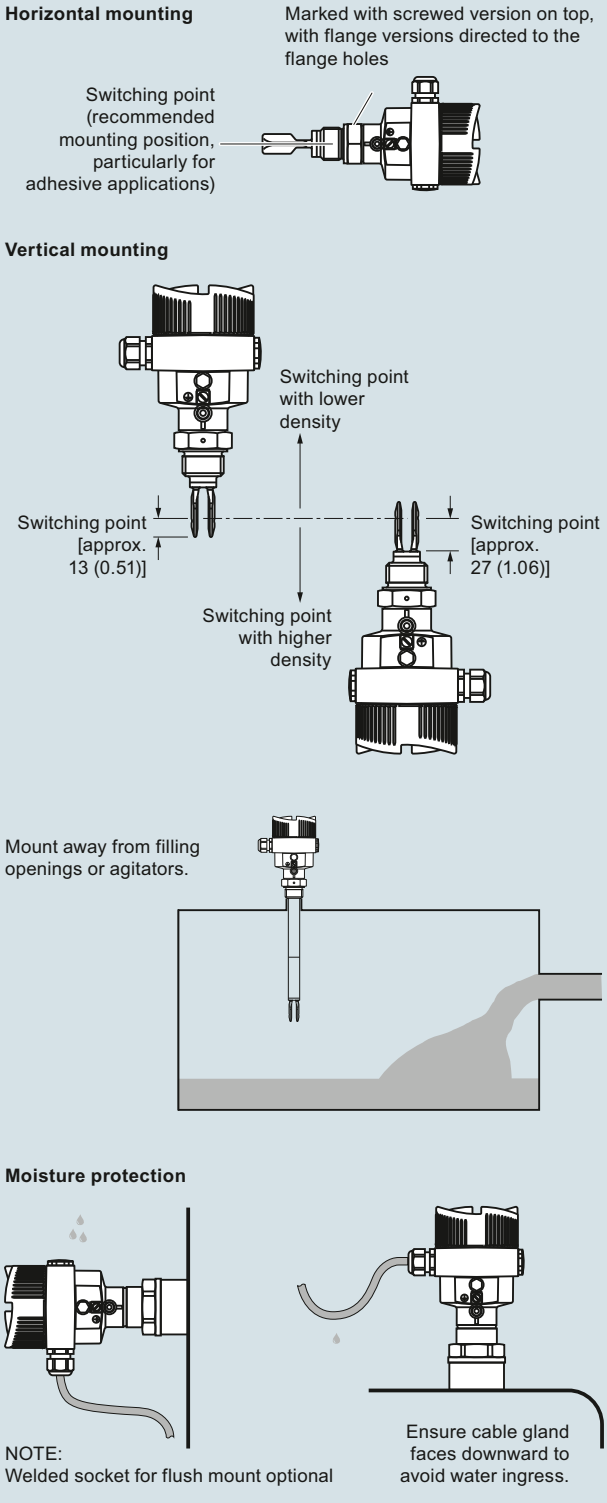
SITRANS LVL200 continuously monitors faults via frequency evaluation, providing early detection of strong corrosion or damage on the tuning fork, loss of vibration, or a line break to the piezo drive.

The tuning fork is piezoelectrically energized and vibrates at its 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, directly operating connected devices.

The optional signal conditioner provides a remote test feature to ensure continuous product reliability.

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

Configuration



SITRANS LVL200 installation, dimensions in mm (inch)

Technical specifications

Mode of operation	
Measuring principle	Vibrating point level switch
Input	
Measured variable	High and low and demand (via mode switch)
Output	
Output options	• Relay output (DPDT), 2 floating SPDTs • Contactless electronic switch • 2-wire Namur signal output • Transistor (NPN/PNP) 10 ... 55 V DC • 8/16 mA
Measuring accuracy	
Repeatability	0.1 mm (0.004 inch)
Hysteresis	Approx. 2 mm (0.08 inch) with vertical installation
Switching delay	• Standard, Extended: approx. 500 ms (on/off) • High temperature: approx. 1 s (optionally adjustable at factory)
Frequency	• Standard, Extended: Approx. 1 200 Hz • High temperature: 1400 Hz
Rated operating conditions	
Installation conditions	
• Location	Indoor/outdoor
Ambient conditions	
• Ambient temperature	-40 ... +70 °C (-40 ... +158 °F)
• Installation category	III
• Pollution degree	2
Medium conditions	
• Temperature	
- LVL200S Standard	-50 ... +150 °C (-58 ... +302 °F)
- LVL200S High temperature option	-50 ... +250 °C (-58 ... +482 °F)
- LVL200E Standard: with 316L/ Alloy C22	-50 ... +150 °C (-58 ... +302 °F)
- LVL200E High temperature option with 316L/Alloy C22	-50 ... +250 °C (-58 ... +482 °F)
- LVL200H, High temperature	-196 … +450 °C (-321 … +842 °F)
Pressure (vessel)	• Standard, Extended: -1 ... 64 bar g (-14.5 ... 928 psi g) • High temperature: instrument version up to 160 bar (2 320 psi g): -1 … 160 bar/-100 … 16 000 kPa (-14.5 … 2 320 psi g) Note: The process pressure is dependent on configuration, including process fitting, e.g. flange
Density	0.7 ... 2.5 g/cm³ (0.025 ... 0.09 lb/in³); 0.5 ... 2.5 g/cm³ (0.018 ... 0.09 lb/in³) by switching over Density optionally starts at 0.47 cm³ (0.017 lb/in³)

Design	
Material	
• Enclosure	• Aluminum die-cast AlSi10Mg, powder-coated, basis: Polyester • Stainless steel housing, electropolished 316L • Stainless steel housing, precision casting 316L • Plastic housing, plastic PBT (Polyester)
• Tuning fork	316L (1.4404 or 1.4435), Alloy C22
• Extension tube [ø 21.3 mm (0.839 inch)]	316L (1.4404 or 1.4435), Alloy C22
• Process connection: threaded	• Standard, Extended: 316L (1.4404 or 1.4435), Alloy C22 • High temperature: Inconel 718
• Process connection: flange	316L (1.4404 or 1.4435), 316L with Alloy C22, ECTFE, or PFA coating
• Process seal	Klingersil C-4400
Process connection	
• Pipe thread, cylindrical (ISO 228 T1)	G ¾" A, G 1" A
• Pipe thread, tapered	¾" NPT, 1" NPT, 1½" NPT
• Flanges	DIN from DN 25, ASME from 1"
• Hygienic fittings	Bolting DN 40 PN 40, 1, 1½, 2, 2½" Tri-Clamp PN 10, conus DN 25 PN 40, Tuchenhagen Varivent DN 50 PN 10, SMS
Degree of protection	Type 4X/NEMA 4X/IP66/IP67
Conduit entry	• 1 x M20 x 1.5 (cable: ø 5 ... 9 mm), 1 x blind stopper M20 x 1.5; attached 1 x M20 x 1.5 cable entry • 1 x ½" NPT cable entry, 1 x blind stopper ½" NPT, 1 x ½" NPT cable entry • 1x M12 x 1; 1 x blind stopper M20 x 1.5
Weight	
• Device weight (dependent on process fitting)	Approx. 0.8 ... 4 kg (0.18 ... 8.82 lb)
• Tube extension (extended version)	Approx. 920 g/m (10 oz/ft)
Power supply	
Supply voltage	
• Relay DPDT	20 ... 253 V AC, 50/60 Hz, 20 ... 72 V DC [at U > 60 V DC]
• Contactless	20 ... 253 V AC, 50/60 Hz, 20 ... 253 V DC
• 2-wire NAMUR	
Operating voltage (characteristics according to standard) for connection to an amplifier according to NAMUR	IEC 60947-5-6, approx. 8.2 V Off-load voltage U_0 approx. 8.2 V Short-circuit current I_U approx. 8.2 mA
Operating voltage 8/16 mA (via the signal conditioning instrument)	
• Non-Ex instrument	12 … 36 V DC
• Ex-d instrument (ATEX, FM, CSA)	12 … 36 V DC
• Ex-ia instrument (ATEX)	12 … 29 V DC
• Ex-ia instrument (FM, CSA)	12 … 31 V DC

Power consumption	• Standard, Extended: 1 ... 8 VA (AC), approx. 1.3 W (DC) • High temperature: 3 VA (AC), 1 W (DC)
• Relay DPDT	1 ... 8 VA (AC), approx. 1.3 W (DC)
• Contactless	Domestic current requirement approx. 3 mA (via load circuit) Load current • Min. 10 mA • Max. 400 mA [with I > 300 mA the ambient temperature can be max. 60 °C (140 °F)] • Max. 4 A up to 40 ms (not WHG specified)
• 8/16 mA, two-wire output	Output signal • Empty (uncovered) - 8 mA • Full (covered) - 16 mA • Fault message - < 1.8 mA Possible signal conditioning instruments: SITRANS SCSC, SITRANS TCSC
• 2-wire Namur	Current consumption • Falling characteristics ≥ 2.6 mA uncovered/≤ 0.6 mA covered • ≤ 0.6 mA uncovered/≥ 2.6 mA covered • Failure message ≤ 0.6 mA
• Transistor (NPN/PNP) 10 ... 55 V DC	Output • Floating transistor output, permanently shortcircuit-proof Load current • < 400 mA Voltage loss • < 1 V Switching voltage • < 55 V DC Blocking current • < 10 µA
Certificates and approvals	• CE, CSA • Overfill Protection WHG and VLAREM II • FM (Non-Incendive) Class I, Div. 2, Groups A, B, C, D • FM (Explosion-Proof) Class I, Div. 1, Groups A, B, C, D; (Dust Ignition-Proof) Class II, III, Div. 1, Groups E, F, G1 • IECEx d IIC T6 ... T2 Ga/Gb EHEDG • ATEX II 1/2G, 2G EEx d IIC T6 • ATEX II 1G, 1/2G, 2G EEx ia IIC T6 • Shipping approvals • BR-Ex d IIC T6 ... T2 • FDA, 3A, EHEDG • SIL/IEC61508 Declaration of Conformity [SIL-2 (min/max detection)] Please see configuration section below for full list of approvals.

SITRANS LVL200

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↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Electronics	
Contactless electronic switch 20 ... 250 V AC/DC[1)9)24)]	**1**
Double relay (DPDT) 20 ... 72 V DC/ 20 ... 250 V AC[24)]	**2**
NAMUR signal[9)]	**4**
Transistor (NPN/PNP) 10 ... 55 V DC[1)25)]	**5**
Two-wire (8/16 mA) 12 ... 36 V DC	**6**
Approvals	
Without approvals	**A**
Overfill protection (WHG)[9)]	**B**
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + WHG[6)9)]	**C**
ATEX II 1/2G, 2G Ex d IIC T6 + WHG[5)15)]	**D**
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + shipping approvals[6)16)]	**E**
ATEX II 1/2G, 2G Ex d IIC T6 + shipping approvals[5)15)]	**F**
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + ATEX II 1/2 D IP6X T[6)7)17)]	**G**
IECEx Ex ia IIC T6[6)18)]	**H**
Shipping approvals[16)]	**K**
ATEX II 3G Ex nA II T5 ... T1 X[14)19)]	**L**
FM (IS) Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G[6)20)]	**N**
FM (XP) Class I, Div. 1, Groups A, B, C, D; (DIP) Class II, III, Div. 1, Groups E, F, G[2)5)10)]	**P**
FM (NI) Class I, Div. 2, Groups A, B, C, D[21)]	**Q**
IECEx d IIC T6 ... T2 Ga/Gb[5)15)]	**R**
CSA (XP) Class I, II, III Div. 1, Groups A,B, C, D, E, F, G[5)15)]	**S**
CSA(NI)Class I, II, III, Div. 2, Groups A, B, C, D, E, F, G[22)]	**T**
BR-Ex d IIC T6 ... T2[5)23)]	**U**
CSA (IS) Class I, II, III Div. 1, Groups A, B, C, D, E, F, G[6)9)]	**V**
ATEX II 1G, 1/2G, 2G Ex ia IIC T6[6)]	**W**
Process connection	
Thread G¾" A, PN 64/316L	**A 0 0**
Thread G¾" A, PN 64/316L Ra < 0.8 µm	**A 0 1**
Thread ¾" NPT, PN 64/316L	**A 0 2**
Thread ¾" NPT, PN 64/316L Ra < 0.8 µm	**A 0 3**
Thread ¾" NPT, PN 64/Alloy 400 (2.4360)	**A 0 4**
Thread G¾" A, PN 64/Alloy C22 (2.4602)	**A 0 5**
Thread ¾" NPT, PN 64/Alloy C22 (2.4602)	**A 0 6**
Thread G1" A, PN 64/316L	**A 0 7**
Thread G1" A, PN 64/316L ECTFE coated MB1982[4)]	**A 0 8**
Thread G1" A, PN 64/ 316L PFA coated[4)]	**A 1 0**
Thread G1" A, PN 64/ Alloy 400 (2.4360)	**A 1 1**
Thread G1" A, PN 64/ 316L Ra < 0.8 µm	**A 1 2**
Thread 1" NPT, PN 64/ 316L	**A 1 3**
Thread 1" NPT, PN 64/ 316L ECTFE coated MB1982[4)]	**A 1 4**
Thread 1" NPT, PN 64 / 316L PFA-coated[4)]	**A 1 5**
Thread 1" NPT, PN 64 / Alloy 400 (2.4360)	**A 1 6**
Thread 1" NPT, PN 64 / 316L Ra < 0.8 µm	**A 1 7**
Thread G1" A, PN 64 / Alloy C22 (2.4602)	**A 1 8**
Thread G1" A, PN 64/Alloy C22 (2.4602) Ra < 0.3 µm	**A 2 0**
Thread G1½" A, PN 64/316L	**A 2 1**
Thread G1½" A, PN 64/316L Ra < 0.8 µm	**A 2 2**
Thread G1½" A, PN 64/Alloy C22 (2.4602)	**A 2 3**

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Thread 1" NPT, PN 64/Alloy C22 (2.4602)	**A 2 4**
Thread 1½" NPT, PN 64/316L	**A 2 5**
Thread 1½" NPT, PN 64/316L Ra < 0.8 µm	**A 2 6**
Thread 1½" NPT, PN 64/Alloy C22 (2.4602)	**A 2 7**
Thread G2" A, PN 64/316L	**A 2 8**
Thread M27 x 1.5, PN 64/316L	**A 3 0**
Conus DN 25, PN 40/316L Ra < 0.3 µm	**A 3 1**
Conus DN 25, PN 40/316L Ra < 0.8 µm	**A 3 2**
Conus DN 25, PN 40/ECTFE (ZB3033)[4)]	**A 3 3**
Conus M52, PN 40/316L	**A 3 4**
Conus M52, PN 40/316L Ra < 0.3 µm	**A 3 5**
Conus M52, PN 40/316L Ra < 0.8 µm	**A 3 6**
Tri-Clamp 1", PN 16/316L Ra < 0.3 µm	**A 3 7**
Tri-Clamp 1", PN 16/Alloy C22 (2.4602)	**A 3 8**
Tri-Clamp 1", PN 16/316L Ra < 0.8 µm	**A 4 0**
Tri-Clamp 1½", PN 16/316L Ra < 0.3 µm	**A4 1**
Tri-Clamp 1½", PN 16/Alloy C22 (2.4602)	**A 4 2**
Tri-Clamp 1½", PN 16/316L Ra < 0.8 µm	**A 4 3**
Tri-Clamp 2", PN 16/316L Ra < 0.3 µm	**A 4 4**
Tri-Clamp 2", PN 16/Alloy C22 (2.4602)	**A 4 5**
Tri-Clamp 2", PN 16/316L Ra < 0.8 µm	**A 4 6**
Tri-Clamp 2½", PN 10/316L Ra < 0.3 µm	**A 4 7**
Tri-Clamp 2½", PN 10/316L Ra < 0.8 µm	**A 4 8**
Tri-Clamp 3", PN 10/316L Ra < 0.3 µm	**A 5 0**
Tri-Clamp 3", PN 10/316L Ra < 0.8 µm	**A 5 1**
Bolting DN 32, PN 40 DIN11851/316L Ra < 0.3 µm	**A 5 2**
Bolting DN 32, PN 40 DIN11851/316L Ra < 0.8 µm	**A 5 3**
Bolting DN 25, PN 40 DIN11851/316L Ra < 0.3 µm	**A 5 4**
Bolting DN 25, PN 40 DIN11851/316L Ra < 0.8 µm	**A 5 5**
Bolting DN 40, PN 40 DIN11851/316L Ra < 0.3 µm	**A 5 6**
Bolting DN 40, PN 40 DIN11851/316L Ra < 0.8 µm	**A 5 7**
Bolting DN 40, PN 40 DIN11864-1 A/316L Ra < 0.8 µm ZB3052	**A 5 8**
Bolting DN 50, PN 25 DIN11851/316L Ra < 0.3 µm	**A 6 0**
Bolting DN 50, PN 25 DIN11851/316L Ra < 0.8 µm	**A 6 1**
Bolting DN 50, PN 25 DIN11864-1 A/316L Ra < 0.8 µm ZB3052	**A 6 2**
Hygienic w. compr. nut F40, PN 25/316L	**A 6 3**
Hygienic w. compr. nut F40, PN 25/316L Ra < 0.3 µm	**A 6 4**
Hygienic w. compr. nut F40, PN 25/316L Ra < 0.8 µm	**A 6 5**
Varivent N50-40/316L Ra < 0.3 µm	**A 6 6**
Varivent N50-40/316L Ra < 0.8 µm	**A 6 7**
Varivent N125/100/316L Ra < 0.8 µm	**A 6 8**
DRD flange, PN 40/316L ZB3007	**A 7 0**
SMS DN 38/316L Ra < 0.8 µm[4)]	**A 7 1**
SMS DN 51, PN 6/316L Ra < 0.8 µm[4)]	**A 7 2**
Swagelok VCR screwing ZG2579, PN 64/316L	**A 7 3**
Neumo biocontrol size 25, PN 16/316L Ra < 0.8 µm	**A 7 4**
Neumo biocontrol size 50, PN 16/316L Ra < 0.8 µm[4)]	**A 7 5**
Neumo biocontrol size 65, PN 16/316L Ra < 0.8 µm	**A 7 6**
Neumo biocontrol size 80, PN 16/316L Ra < 0.8 µm	**A 7 7**
SÜDMO DN 50, PN 10/316L Ra < 0.8 µm	**A 7 8**
Small flange DN 25, PN 1.5 DIN 28403/316L pol. Ra < 0.8 µm	**A 8 0**
Small flange DN 40, PN 1.5 DIN 28403/316L pol. Ra < 0.8 µm	**A 8 1**
Ingold connection, PN16 / 316 L Ra < 0.8 µm (acc. to MB2523)	**A 8 2**

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Ingold connection, PN 16/Alloy C22 (2.4602) Ra < 0.8 µm (acc. to MB6017)	**A 8 3**
Terminal DN 33.7 PN 40 DIN11864-3-A-/316L BN2 Ra < 0.8 µm[4]	**A 8 4**
Hygienic fl. DN 50 PN 16 DIN11864-2-A-/316L Ra < 0.8 µm	**A 8 5**
Flange DN 25, PN 6 Form C, DIN 2501/316L	**A 8 6**
Flange DN 25, PN 6 Form C, DIN 2501/PFA[4]	**A 8 7**
Flange DN 25, PN 40 Form C, DIN 2501/316L	**A 8 8**
Flange DN 25, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 0 0**
Flange DN 25, PN 40 Form C, DIN 2501/ECTFE[4]	**B 0 1**
Flange DN 25, PN 40 Form C, DIN 2501/PFA[4]	**B 0 2**
Flange DN 25, PN 40 Form C, DIN 2501/Enamelled	**B 0 3**
Flange DN 25, PN 40 Form D, DIN 2501/316L	**B 0 4**
Flange DN 25, PN 40 Form F, DIN 2501/316L	**B 0 5**
Flange DN 25, PN 40 Form N, DIN 2501/316L	**B 0 6**
Flange DN 25, PN 40 Form N, DIN 2501/ Alloy C22 (2.4602)	**B 0 7**
Flange DN 25, PN 40 Form N, DIN 2501/ Alloy 400 (2.4360) solid	**B 0 8**
Flange DN 25, PN 40 V13, DIN 2501/316L	**B 1 0**
Flange DN 32, PN 40 Form C, DIN 2501/316L	**B 1 1**
Flange DN 32, PN 40 Form C, DIN 2501/ECTFE[4]	**B 1 2**
Flange DN 40, PN 6 Form C, DIN 2501/316L	**B 1 3**
Flange DN 40, PN 6 Form C, DIN 2501/ECTFE[4]	**B 1 4**
Flange DN 40, PN 40 Form C, DIN 2501/316L	**B 1 5**
Flange DN 40, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 1 6**
Flange DN 40, PN 40 Form C, DIN 2501/ECTFE[4]	**B 1 7**
Flange DN 40, PN 40 Form C, DIN 2501/PFA[4]	**B 1 8**
Flange DN 40, PN 40 Form C, DIN 2501/ Enamelled[3]	**B 2 0**
Flange DN 40, PN 40 Form F, DIN 2501/316L	**B 2 1**
Flange DN 40, PN 40 Form N, DIN 2501/316L	**B 2 2**
Flange DN 40, PN 40 Form E, DIN 2501/316L	**B 2 3**
Flange DN 40, PN 40 V13, DIN 2501/316L	**B 2 4**
Flange DN 50, PN 40 Form C, DIN 2501/316L	**B 2 5**
Flange DN 50, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 2 6**
Flange DN 50, PN 40 Form C, DIN 2501/ECTFE[4]	**B 2 7**
Flange DN 50, PN 40 Form C, DIN 2501/ ECTFE (ZB3108)[4]	**B 2 8**
Flange DN 50, PN 40 Form C, DIN 2501/PFA[4]	**B 3 0**
Flange DN 50, PN 40 Form D, DIN 2501/316L	**B 3 1**
Flange DN 50, PN 40 Form D, DIN 2501/ Alloy C22 (2.4602)	**B 3 2**
Flange DN 50, PN 40 Form F, DIN 2501/316L	**B 3 3**
Flange DN 50, PN 40 Form N, DIN 2501/316L	**B 3 4**
Flange DN 50, PN 40 Form N, DIN 2501/ Alloy C22 (2.4602)	**B 3 5**
Flange DN 50, PN 40 Form E, DIN 2501/316L	**B 3 6**
Flange DN 50, PN 40 V13, DIN 2501/316L	**B 3 7**
Flange DN 50, PN 40 R13, DIN 2501/316L	**B 3 8**
Flange DN 50, PN 64 Form F, DIN 2501/316L	**B 4 0**
Flange DN 50, PN 64 Form N, DIN 2501/ Alloy C22 (2.4602)	**B 4 1**
Flange DN 50, PN 64 Form C, DIN 2501/316L	**B 4 2**
Flange DN 50, PN 64 Form L, DIN 2501/316L	**B 4 3**
Flange DN 50, PN 100 Form E, DIN 2501/316L	**B 4 4**
Flange DN 50, PN 100 Form L, DIN 2501/316L	**B 4 5**
Flange DN 65, PN 40 Form C, DIN 2501/316L	**B 4 6**

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Flange DN 65, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 4 7**
Flange DN 65, PN 40 Form C, DIN 2501/ECTFE[4]	**B 4 8**
Flange DN 65, PN 40 Form C, DIN 2501/PFA[4]	**B 5 0**
Flange DN 65, PN 40 Form F, DIN 2501/316L	**B 5 1**
Flange DN 65, PN 64 Form E, DIN 2501/316L	**B 5 2**
Flange DN 80, PN 40 Form C, DIN 2501/316L	**B 5 3**
Flange DN 80, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 5 4**
Flange DN 80, PN 40 Form C, DIN 2501/ECTFE[4]	**B 5 5**
Flange DN 80, PN 40 Form C, DIN 2501/PFA[4]	**B 5 6**
Flange DN 80, PN 40 Form C, DIN 2501/ Enamelled[3]	**B 5 7**
Flange DN 80, PN 40 Form F, DIN 2501/316L	**B 5 8**
Flange DN 80, PN 40 Form N, DIN 2501/316L	**B 6 0**
Flange DN 100, PN 16 Form C, DIN 2501/316L	**B 6 2**
Flange DN 100, PN 16 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 6 3**
Flange DN 100, PN 16 Form C, DIN 2501/ECTFE[4]	**B 6 4**
Flange DN 100, PN 16 Form C, DIN 2501/PFA[4]	**B 6 5**
Flange DN 100, PN 16 Form C, DIN 2501/ Enamelled[3]	**B 6 6**
Flange DN 100, PN 16 Form D, DIN 2501/316L	**B 6 7**
Flange DN 100, PN 16 Form F, DIN 2501/316L	**B 6 8**
Flange DN 100, PN 16 Form N, DIN 2501/316L	**B 7 0**
Flange DN 100, PN 40 Form C, DIN 2501/316L	**B 7 1**
Flange DN 100, PN 40 Form C, DIN 2501/ECTFE[4]	**B 7 2**
Flange DN 100, PN 40 Form C, DIN 2501/PFA[4]	**B 7 3**
Flange DN 100, PN 40 Form C, DIN 2501/ Enamelled[3]	**B 7 4**
Flange DN 100, PN 40 Form F, DIN 2501/316L	**B 7 5**
Flange DN 100, PN 40 Form N, DIN 2501/316L	**B 7 6**
Flange DN 100, PN 40 V13, DIN 2501/316L	**B 7 7**
Flange DN 100, PN 64 Form E, DIN 2501/316L	**B 7 8**
Flange DN 100, PN 100 Form E, DIN 2501/316L	**B 8 0**
Flange DN 100, PN 100 Form L, DIN 2501/316L	**B 8 1**
Flange DN 125, PN 16 Form F, DIN 2501/316L	**B 8 2**
Flange DN 125, PN 40 Form C, DIN 2501/316L	**B 8 3**
Flange DN 125, PN 40 Form N, DIN 2512/ 316L	**B 8 4**
Flange DN 150, PN 16 Form C, DIN 2501/316L	**B 8 5**
Flange DN 150, PN 16 Form C, DIN 2501/ Alloy C22 (2.4602)	**B 8 6**
Flange DN 150, PN 16 Form C, DIN 2501/ECTFE[4]	**B 8 7**
Flange DN 150, PN 16 Form C, DIN 2501/PFA[4]	**B 8 8**
Flange DN 150, PN 16 Form D, DIN 2501/316L	**C 0 0**
Flange DN 150, PN 40 Form C, DIN 2501/316L	**C 0 1**
Flange DN 150, PN 40 Form C, DIN 2501/ Alloy C22 (2.4602)	**C 0 2**
Flange DN 150, PN 40 Form F, DIN 2501/316L	**C 0 3**
Flange DN 150, PN 40 Form N, DIN 2512/316L	**C 0 4**
Flange DN 200, PN 10 Form C, DIN 2501/ECTFE[4]	**C 0 5**
Flange DN 200, PN 16 Form C, DIN 2501/316L	**C 0 6**
Flange DN 25, PN 40 Form B1, EN 1092-1/316L	**C 0 7**
Flange DN 25, PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602)	**C 0 8**
Flange DN 25, PN 40 Form B1, EN/ 316L/ PFA[4]	**C 1 0**
Flange DN 25, PN 40 Form B1, EN 1092-1/ Enamelled[3]	**C 1 1**
Flange DN 25, PN 40 Form B2, EN 1092-1/316L	**C 1 2**
Flange DN 25, PN 40 Form F, EN 1092-1/316L	**C 1 3**
Flange DN 25, PN 63 Form B1, EN 1092-1/316L	**C 1 4**

SITRANS LVL200

Selection and Ordering data	Article No.
SITRANS LVL200, Standard 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. For use in SIL-2 and hazardous applications.	**7ML5746-** ■■■■■ - ■■ **A 0**
Flange DN 25, PN 100 Form B2, EN 1092-1/316L	**C 1 5**
Flange DN 40, PN 40 Form B1, EN/ 316L	**C 1 6**
Flange DN 40, PN 40 Form B1, EN 1092-1/PFA[4)]	**C 1 7**
Flange DN 40, PN 40 Form B2, EN/316L	**C 1 8**
Flange DN 50, PN 40 Form B1, EN/316L	**C 2 0**
Flange DN 50, PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602)	**C 2 1**
Flange DN 50, PN 40 Form B1, EN 1092-1/ Alloy 400 (2.4360) ZB2977	**C 2 2**
Flange DN 50, PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 2 3**
Flange DN 50, PN 40 Form B1, EN/ 316L/PFA[4)]	**C 2 4**
Flange DN 50, PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 2 5**
Flange DN 50, PN 40 Form C, EN 1092-1/316L	**C 2 6**
Flange DN 50, PN 40 Form D, EN/316L	**C 2 7**
Flange DN 50, PN 40 Form D, EN 1092-1/ Alloy C22 (2.4602)	**C 2 8**
Flange DN 50, PN 40 Form B2, EN 1092-1/316L	**C 3 0**
Flange DN 50, PN 40 Form E, EN 1092-1/316L	**C 3 1**
Flange DN 80, PN 40 Form B1, EN 1092-1/316L	**C 3 2**
Flange DN 80, PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602)	**C 3 3**
Flange DN 80, PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 3 4**
Flange DN 80, PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 3 5**
Flange DN 80, PN 40 Form B2, EN 1092-1/316L	**C 3 6**
Flange DN 100, PN 16 Form B1, EN 1092-1/316L	**C 3 7**
Flange DN 100, PN 16 Form B1, EN 1092-1/ Alloy C22 (2.4602)	**C 3 8**
Flange DN 100, PN 16 Form B1, EN 1092-1/ Enamelled[3)]	**C 4 0**
Flange DN 100, PN 40 Form B1, EN 1092-1/316L	**C 4 1**
Flange DN 100, PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 4 2**
Flange DN 100, PN 40 Form C, EN 1092-1/316L	**C 4 3**
Flange DN 100, PN 63 Form B2, EN 1092-1/316L	**C 4 4**
Flange DN 150, PN 16 Form B1, EN 1092-1/316L	**C 4 5**
Flange DN 150, PN 16 Form B1, EN 1092-1/PFA[4)]	**C 4 6**
Flange DN 150, PN 40 Form B1, EN 1092-1/316L	**C 4 7**
Flange DN 150, PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 4 8**
Flange DN 150, PN 40 Form B2, EN 1092-1/316L	**C 5 0**
Flange 1" 150 lb ASME B16.5/316L	**C 5 1**
Flange 1" 150 lb RF, ASME B16.5/Alloy C22 (2.4602)	**C 5 2**
Flange 1" 150 lb RF, ASME B16.5/Alloy 400 (2.4360) ZB2977	**C 5 3**
Flange 1" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 5 4**
Flange 1" 150 lb RF, ASME B16.5/PFA[4)]	**C 5 5**
Flange 1" 150 lb RF, ASME B16.5/Enamelled[3)]	**C 5 6**
Flange 1" 300 lb RF, ASME B16.5/316L	**C 5 7**
Flange 1" 300 lb RF, ASME B16.5/ECTFE[4)]	**C 5 8**
Flange 1" 600 lb RF, ASME B16.5/316L	**C 6 0**
Flange 1½" 150 lb RF, ASME B16.5/316L	**C 6 1**
Flange 1½" 150 lb RF, ASME B16.5/ Alloy C22 (2.4602)	**C 6 2**
Flange 1½" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 6 3**
Flange 1½" 150 lb RF, ASME B16.5/PFA[4)]	**C 6 4**
Flange 1½" 150 lb RF, ASME B16.5 Enamelled[3)]	**C 6 5**
Flange 1½" 150 lb FF, ASME B16.5/ECTFE[4)]	**C 6 6**
Flange 1½" 300 lb RF, ASME B16.5/316L	**C 6 7**

Selection and Ordering data	Article No.
SITRANS LVL200, Standard 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. For use in SIL-2 and hazardous applications.	**7ML5746-** ■■■■■ - ■■ **A 0**
Flange 1½" 300 lb RF, ASME B16.5/ Alloy 400 (2.4360) ZB2977	**C 6 8**
Flange 1½" 300 lb RF, ASME B16.5/ECTFE[3)]	**C 7 0**
Flange 1½" 600 lb RF, ASME B16.5/316L	**C 7 1**
Flange 2" 150 lb RF, ASME B16.5/316L	**C 7 2**
Flange 2" 150 lb RF, ASME B16.5/Alloy C22 (2.4602)	**C 7 3**
Flange 2" 150 lb RF, ASME B16.5/Alloy 400 (2.4360) ZB2977	**C 7 4**
Flange 2" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 7 5**
Flange 2" 150 lb RF, ASME B16.5/PFA[4)]	**C 7 6**
Flange 2" 150 lb RF, ASME B16.5/Enamelled[3)]	**C 7 7**
Flange 2" 150 lb FF, ASME B16.5/316L	**C 7 8**
Flange 2" 150 lb FF, ASME B16.5/ECTF[4)]	**C 8 0**
Flange 2" 150 lb SG (small groove), ASME B16.5/316L	**C 8 1**
Flange 2" 300 lb RF, ASME B16.5/316L	**C 8 2**
Flange 2" 300 lb RF, ASME B16.5/Alloy C22 (2.4602)	**C 8 3**
Flange 2" 300 lb RF, ASME B16.5/ECTFE[4)]	**C 8 5**
Flange 2" 300 lb RF, ASME B16.5/PFA[4)]	**C 8 6**
Flange 2" 300 lb RF, ASME B16.5 Enamelled[3)]	**C 8 7**
Flange 2" 300 lb RJF, ASME B16.5/316L	**C 8 8**
Flange 2" 300 lb ST, ASME B16.5/316L	**D 0 0**
Flange 2" 300 lb LG (large groove), ASME B16.5/316L	**D 0 1**
Flange 2" 300 lb LT, ASME B16.5/316L	**D 0 2**
Flange 2" 600 lb RF, ASME B16.5/316L	**D 0 3**
Flange 2" 600 lb RF, ASME B16.5/Alloy 400 (2.4360) ZB2977	**D 0 4**
Flange 2" 600 lb RF, ASME B16.5/ECTFE[4)]	**D 0 5**
Flange 2" 600 lb RJF, ASME B16.5/316L	**D 0 6**
Flange 2" 600 lb LG, ASME B16.5/316L	**D 0 7**
Flange 2" 900 lb RJF, ASME B16.5/316L	**D 0 8**
Flange 2½" 150 lb RF, ASME B16.5/316L	**D 1 0**
Flange 2½" 300 lb RF, ASME B16.5/316L	**D 1 1**
Flange 3" 150 lb RF, ASME B16.5/316L	**D 1 2**
Flange 3" 150 lb RF, ASME B16.5/Alloy C22 (2.4602)	**D 1 3**
Flange 3" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 1 4**
Flange 3" 150 lb RF, ASME B16.5/PFA[4)]	**D 1 5**
Flange 3" 150 lb RF, ASME B16.5/Enamelled[3)]	**D 1 6**
Flange 3" 150 lb FF, ASME B16.5/316L	**D 1 7**
Flange 3" 150 lb FF, ASME B16.5/ECTFE[4)]	**D 1 8**
Flange 3" 150 lb FF, ASME B16.5/PFA[4)]	**D 2 0**
Flange 3" 300 lb RF, ASME B16.5/316L	**D 2 1**
Flange 3" 300 lb RF, ASME B16.5/Alloy C22 (2.4602)	**D 2 2**
Flange 3" 300 lb RF, ASME B16.5/ECTFE[4)]	**D 2 3**
Flange 3" 300 lb RF, ASME B16.5/PFA[4)]	**D 2 4**
Flange 3" 300 lb RF, ASME B16.5/Enamelled[3)]	**D 2 5**
Flange 3" 600 lb RF, ASME B16.5/316L	**D 2 6**
Flange 3½" 150 lb RF, ASME B16.5/316L	**D 2 7**
Flange 3½" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 2 8**
Flange 4" 150 lb RF, ASME B16.5/316L	**D 3 0**
Flange 4" 150 lb RF, ASME B16.5/Alloy C22 (2.4602)	**D 3 1**
Flange 4" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 3 2**
Flange 4" 150 lb RF, ASME B16.5/PFA[4)]	**D 3 3**
Flange 4" 150 lb RF, ASME B16.5/Enamelled[3)]	**D 3 4**

Selection and Ordering data	Article No.			
SITRANS LVL200, Standard 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. For use in SIL-2 and hazardous applications.	**7ML5746-**		-	**A 0**
Flange 4" 150 lb LT, ASME B16.5/316L	**D 3 5**			
Flange 4" 300 lb RF, ASME B16.5/316L	**D 3 6**			
Flange 4" 300 lb RF, ASME B16.5/Alloy C22 (2.4602)	**D 3 7**			
Flange 4" 300 lb RF, ASME B16.5/ECTFE[4)]	**D 3 8**			
Flange 4" 300 lb RJF, ASME B16.5/316L	**D 4 0**			
Flange 4" 300 lb LG, ASME B16.5/316L	**D 4 1**			
Flange 4" 300 lb LT, ASME B16.5/316L	**D 4 2**			
Flange 4" 600 lb RF, ASME B16.5/316L	**D 4 3**			
Flange 4" 600 lb RJF, ASME B16.5/316L	**D 4 4**			
Flange 6" 150 lb RF, ASME B16.5/316L	**D 4 5**			
Flange 6" 150 lb RF, ASME B16.5/Alloy C22 (2.4602)	**D 4 6**			
Flange 6" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 4 7**			
Flange 6" 150 lb RF, ASME B16.5/PFA[4)]	**D 4 8**			
Flange 6" 150 lb RJF, ASME B16.5/316L	**D 5 0**			
Flange 6" 300 lb RF, ASME B16.5/316L	**D 5 1**			
Flange 8" 150 lb RF, ASME B16.5/316L	**D 5 2**			
Flange 8" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 5 3**			
Flange 1" BS.10 Table E/316L	**D 5 4**			
Flange 1" BS.10 Table E/PFA[4)]	**D 5 5**			
Flange 1½" BS.10 Table E/316L	**D 5 6**			
Flange 3½" BS.10 Table E/316L	**D 5 7**			
Flange 4" BS.10 Table E/ECTFE[4)]	**D 5 8**			
Flange DN 40 10K, JIS/316L	**D 6 0**			
Flange DN 50 10K, JIS/316L	**D 6 1**			
Flange DN 80 10K, JIS/316L	**D 6 2**			
Flange DN 100 10K, JIS/316L	**D 6 3**			
Thread R1 PN 64, EN 10226-1/316L	**D 6 5**			
Flange 2" 900 lb RF, ASME B16.5/316L	**D 7 0**			
Adapter/Process temperature				
Without adapter/-50 ... +150 °C (-58 ... +302 °F)		**1**		
With adapter/-50 ... +200 °C (-58 ... +392 °F)[13)]		**2**		
With adapter/-50 .... +250 °C (-58 ... +482 °F)		**3**		
With gas-tight leadthrough/-50 ... +150 °C (-58 ... +302 °F)		**4**		
With gas-tight leadthrough/-50 ... +250 °C (-58 ... +482 °F)		**5**		
Housing/Cable entry				
Aluminum IP66/IP67/M20 x 1.5			**A**	
Aluminum IP66/IP67/½" NPT			**B**	
316L stainless steel (electropolished) IP66/IP67/M20 x 1.5			**C**	
316L stainless steel (electropolished) IP66/IP67/½" NPT			**D**	
Plastic single chamber IP66/IP67/M20 x 1.5			**E**	
Plastic single chamber IP66/IP67/½" NPT			**F**	
Stainless steel chamber (precision casting) IP66/IP67/M20 x 1.5			**G**	
Stainless steel chamber (precision casting) IP66/IP67/½" NPT			**H**	
Aluminum IP66/IP67/M20 x 1.5 Special HARTING plug (bent) according to Tier One (ZB7555)[11)]			**V**	

SITRANS LVL200

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Switching status indication with colors red-green[12)]	**A21**
Cleaning including Certificate (oil, grease, and silicone free)	**W01**
Identification label (measurement loop) stainless steel: max. 40 characters, add in plain text. To add more than one line, use a coma "," for line break.	**Y17**
Identification Label (measurement loop) foil: max. 40 characters add in plain text. To add more than one line, use a coma "," for line break.	**Y18**
NACE0175 to 3.1 Material Certificate for material (EN10204 NACE MR 0175)[8)] Note: not available with Process Connection and Rigid extension coatings PFA, ECTFE, and Enamel. NACE not available with Hygienic process connections.	**D07**
Material Inspection certificate 3.1 of EN 10204[8)]	**C05**
2.2-Factory certificate for material (EN 10204)[8)]	**C15**
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511[8)]	**C20**
Dye penetration test, results confirmed via a 3.1 certificate/instrument (EN10204)[8)]	**C13**
X-ray test + 3.1 certificate/instrument[8)]	**C14**
Positive material identification test + 3.1 certificate/instrument[8)]	**C16**
Roughness test + 3.1 certificate/instrument[8)]	**C18**
3.1-Inspection Certificate for instrument with test data (EN 10204)	**C25**
Quality and test plan	**C26**
Pressure test + 3.1 certificate/instrument[8)]	**C31**
Helium leak test + 3.1 certificate/instrument[8)]	**C32**
Ferrite measuring accuracy to DIN32514-1 + 3.1 certificate/instrument[8)]	**C60**
Pressure test according to Norsok + 3.1 certificate/instrument[8)]	**C61**
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Spare Parts and Accessories	Article No.
Electronics module SITRANS LVL200 Relay	**7ML1830-1NC**
Electronics module SITRANS LVL200 Contactless	**7ML1930-6AA**
NAMUR spare electronics module	**A5E35817107**
SITRANS SCSC single channel signal conditioner and remote test	**7ML5760**
SITRANS TCSC two channel signal conditioner and remote test	**7ML5761**
LVL200 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**

1) Available only with Adapter/Process temperature options 1, 3, 4, and 5.
2) Available only with Housing/Protection/Cable option B.
3) Available only with Adapter/Process Temperature options 1, 2, and 4.
4) Not available with Adapter/Process Temperature options 2, 3, and 5.
5) Not available with Adapter/Process Temperature options 2, 4, and 5.
6) Available only with Electronics options 4 and 6.
7) Not available with ECTFE coated probe options.
8) Listed Certificates are not available with all configurations please contact factory for more information.
9) Not available with Housing/Protection/Cable Option V.
10) Not available with PFA and ECTFE coating options.
11) Available only with Approval option A.
12) Available only with Relay Electronic options and Non-hazardous Approval options.
13) Available only with Enamelled Process connection options.
14) Available only with Electronic options 4, 5, and 6.
15) Available only with Aluminum Housing/Protection/Cable options.
16) Not available with Stainless Steel (electropolished) Housing/Protection/Cable options and certain glands.
17) Not available with Plastic and Stainless Steel (electropolished) Housing/Protection/Cable options and certain glands.
18) Not available with Housing/Protection/Cable options D, and V.
19) Not available with Plastic Housing/Protection/Cable options and certain glands.
20) Not available with Housing/Protection/Cable options A, E, G, and V.
21) Available only with Housing/Protection/Cable options B, D, F, and H.
22) Not available with Housing/Protection/Cable options C and V.
23) Available only with Housing/Protection/Cable options A, B, and H.
24) Not available with Approval options C, E, G, H, L, N, V, and W.
25) Not available with Approval options C, E, G, H, N, V, and W.

Selection and Ordering data	Article No.
SITRANS LVL200, Rigid extension ↗ Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Electronics	
Contactless electronic switch 20 ... 250 V AC/ DC[1)9)14)]	1
Double relay (DPDT) 20 ... 72 V DC/ 20 ... 250 V AC[14)]	2
NAMUR signal[9)]	4
Transistor (NPN/PNP) 10 ... 55 V DC[1)15)]	5
Two-wire (8/16 mA) 12 ... 36 V DC	6
Approvals	
Without approvals	A
Overfill protection (WHG)[9)]	B
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + WHG[6)9)]	C
ATEX II 1/2G, 2G Ex d IIC T6 + WHG[5)7)16)]	D
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + shipping approvals[6)17)]	E
ATEX II 1/2G, 2G Ex d IIC T6 + shipping approvals[5)7)16)]	F
ATEX II 1G, 1/2G, 2G Ex ia IIC T6 + ATEX II 1/2D IP6X T[6)8)18)]	G
IECEx Ex ia IIC T6[6)19)]	H
Shipping approvals[17)]	K
ATEX II 3G Ex nA II T5 ... T1 X[18)]	L
FM (IS) Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G[6)20)]	N
FM (XP) Class I, Div. 1, Groups A, B, C, D; (DIP) Class II, III, Div. 1, Groups E, F, G[2)5)]	P
FM (NI) Class I, Div. 2, Groups A, B, C, D[21)]	Q
IECEx d IIC T6 ... T2 Ga/Gb[5)7)16)]	R
CSA(XP) Class I,II,III Div. 1, Groups A, B, C, D, E, F, G[2)5)7)]	S
CSA(NI)Class I,II,III, Div. 2, Groups A, B, C, D, E, F, G[22)]	T
BR-Ex d IIC T6 ... T2[5)18)]	U
CSA (IS) Class I, II, III Div. 1, Groups A, B, C, D, E, F, G[6)9)]	V
ATEX II 1G, 1/2G, 2G Ex ia IIC T6[6)]	W
NOTE: **When selecting a Process connection option, process connection coating must match the extension coating and the material and surface roughness type.**	
Process connection	
Thread G¾" A, PN 64/316L	A00
Thread G¾" A, PN 64/316L Ra < 0.8 µm	A01
Thread ¾" NPT, PN 64/316L	A02
Thread ¾" NPT, PN 64/316L Ra < 0.8 µm	A03
Thread ¾" NPT, PN 64/Alloy 400 (2.4360)	A04
Thread G¾" A, PN 64/Alloy C22 (2.4602)	A05
Thread ¾" NPT, PN 64/Alloy C22 (2.4602)	A06
Thread G1" A, PN 64/316L	A07
Thread G1" A, PN 64/316L ECTFE coated MB1982[4)]	A08
Thread G1" A, PN 64/316L PFA coated[4)]	A10
Thread G1" A, PN 64/Alloy 400 (2.4360)	A11
Thread G1" A, PN 64/316L Ra < 0.8 µm	A13
Thread 1" NPT, PN 64/316L	A14
Thread 1" NPT, PN 64/316L ECTFE coated MB1982[4)]	A15
Thread 1" NPT, PN 64/316L PFA coated[4)]	A16
Thread 1" NPT, PN 64/Alloy 400 (2.4360)	A17
Thread 1" NPT, PN 64/316L Ra < 0.8 µm	A18
Thread G1" A, PN 64/Alloy C22 (2.4602)	A20

Selection and Ordering data	Article No.
SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
Thread G1½" A, PN 64/316L	A21
Thread G1½" A, PN 64/316L Ra <0.8 µm	A22
Thread G1½" A, PN 64/Alloy C22 (2.4602)	A23
Thread 1" NPT, PN 64/Alloy C22 (2.4602)	A24
Thread 1½" NPT, PN 64/316L	A25
Thread 1½" NPT, PN 64/316L Ra< 0.8 µm	A26
Thread 1½" NPT, PN 64/Alloy C22 (2.4602)	A27
Thread G2" A, PN 64/316L	A28
Thread M27 x 1.5 PN 64/316L	A30
Cyl. socket/316Ti/1.4581 ECTFE coated ZB2984[4)]	A31
Conus DN 25 PN 40/316L Ra < 0.3 µm	A32
Conus DN 25 PN 40/316L Ra < 0.8 µm	A33
Conus DN 25 PN 40/ECTFE (ZB3033)[4)]	A34
Conus M52 PN 40/316L	A35
Conus M52 PN 40/316L Ra < 0.3 µm	A36
Conus M52 PN 40/316L Ra < 0.8 µm	A37
Tri-Clamp 1" PN 16/316L Ra < 0.3 µm	A38
Tri-Clamp 1" PN 16/Alloy C22 (2.4602)	A40
Tri-Clamp 1" PN 16/316L Ra < 0.8 µm	A41
Tri-Clamp 1½" PN 16/316L Ra < 0.3 µm	A42
Tri-Clamp 1½" PN 16/Alloy C22 (2.4602)	A43
Tri-Clamp 1½" PN 16/316L Ra < 0.8 µm	A44
Tri-Clamp 2" PN 16/316L Ra < 0.3 µm	A45
Tri-Clamp 2" PN 16/Alloy C22 (2.4602)	A46
Tri-Clamp 2" PN 16/316L Ra < 0.8 µm	A47
Tri-Clamp 2½" PN 10/316L Ra < 0.3 µm	A48
Tri-Clamp 2½" PN 10/316L Ra < 0.8 µm	A50
Tri-Clamp 3" PN 10/316L Ra < 0.3 µm	A51
Tri-Clamp 3" PN 10/316L Ra < 0.8 µm	A52
Bolting DN 32 PN 40 DIN11851/316L Ra < 0.3 µm	A53
Bolting DN 32 PN 40 DIN11851/316L Ra < 0.8 µm	A54
Bolting DN 25 PN 40 DIN11851/316L Ra < 0.3 µm	A55
Bolting DN 25 PN 40 DIN11851/316L Ra < 0.8 µm	A56
Bolting DN 40 PN 40 DIN11851/316L Ra < 0.3 µm	A57
Bolting DN 40 PN 40 DIN11851/316L Ra < 0.8 µm	A58
Bolting DN 40 PN 40 DIN11864-1 A/316L Ra < 0.8 µm ZB3052	A60
Bolting DN 50 PN 25 DIN11851/316L Ra < 0.3 µm	A61
Bolting DN 50 PN 25 DIN11851/316L Ra < 0.8 µm	A62
Bolting DN 50 PN 25 DIN11864-1 A/316L Ra < 0.8 µm ZB3052	A63
Hygienic w.compr.nut F40 PN 25/316L	A64
Hygienic w.compr.nut F40 PN 25/316L Ra < 0.3 µm	A65
Hygienic w.compr.nut F40 PN 25/316L Ra < 0.8 µm	A66
Varivent N50-40/316L Ra < 0.3 µm	A67
Varivent N50-40/316L Ra < 0.8 µm	A68
Varivent N125/100/316L Ra < 0.8 µm	A70
DRD flange PN 40/316L ZB3007	A71
SMS DN 38/316L Ra < 0.8 µm[4)]	A72
SMS DN 51 PN 6/316L Ra < 0.8 µm[4)]	A73
Swagelok VCR screwing ZG2579 PN 64/316L	A74
Neumo biocontrol size 25 PN 16/316L Ra < 0.8 µm	A75
Neumo biocontrol size 50 PN 16/316L Ra < 0.8 µm	A76
SÜDMO DN 50 PN 10/316L Ra < 0.8 µm	A80
Small flange DN 25 PN 1.5 DIN 28403/316L pol. Ra < 0.8 µm	A81
Small flange DN 40 PN 1.5 DIN 28403/316L pol. Ra < 0.8 µm	A82
Ingold connection PN 16/316L Ra < 0.8 µm	A83

SITRANS LVL200

Selection and Ordering data	Article No.
SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
Collar clamp connection DN33,7 PN40 Form A, DIN11864-3/1.4435 (BN2, Ra < 0.8 µm)	**A 8 4**
Collar flange DN50 PN16 Form A, DIN11864-2/ 316L (Ra < 0.8 µm)	**A 8 5**
Flange DN 25 PN 6 Form C, DIN 2501/316L	**A 8 6**
Flange DN 25 PN 6 Form C, DIN 2501/PFA[4)]	**A 8 7**
Flange DN 25 PN 40 Form C, DIN 2501/316L	**A 8 8**
Flange DN 25 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 0 0**
Flange DN 25 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 0 1**
Flange DN 25 PN 40 Form C, DIN 2501/PFA[4)]	**B 0 2**
Flange DN 25 PN 40 Form D, DIN 2501/316L	**B 0 3**
Flange DN 25 PN 40 Form F, DIN 2501/316L	**B 0 4**
Flange DN 25 PN 40 Form N, DIN 2501/316L	**B 0 5**
Flange DN 25 PN 40 Form N, DIN 2501/ Alloy C22 (2.4602) plated	**B 0 6**
Flange DN 25 PN 40 Form N, DIN 2501/ Alloy 400 (2.4360) solid	**B 0 7**
Flange DN 25 PN 40 V13, DIN 2501/316L	**B 0 8**
Flange DN 32 PN 40 Form C, DIN 2501/316L	**B 1 0**
Flange DN 32 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 1 1**
Flange DN 40 PN 6 Form C, DIN 2501/316L	**B 1 2**
Flange DN 40 PN 6 Form C, DIN 2501/ECTFE[4)]	**B 1 3**
Flange DN 40 PN 40 Form C, DIN 2501/316L	**B 1 4**
Flange DN 40 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 1 5**
Flange DN 40 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 1 6**
Flange DN 40 PN 40 Form C, DIN 2501/PFA[4)]	**B 1 7**
Flange DN 40 PN 40 Form C, DIN 2501/Enamelled[3)]	**B 1 8**
Flange DN 40 PN 40 Form F, DIN 2501/316L	**B 2 0**
Flange DN 40 PN 40 Form N, DIN 2501/316L	**B 2 1**
Flange DN 40 PN 40 Form E, DIN 2501/316L	**B 2 2**
Flange DN 40 PN 40 V13, DIN 2501/316L	**B 2 3**
Flange DN 50 PN 40 Form C, DIN 2501/316L	**B 2 4**
Flange DN 50 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 2 5**
Flange DN 50 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 2 6**
Flange DN 50 PN 40 Form C, DIN 2501/ECTFE (ZB3108)[4)]	**B 2 7**
Flange DN 50 PN 40 Form C, DIN 2501/PFA[4)]	**B 2 8**
Flange DN 50 PN 40 Form D, DIN 2501/316L	**B 3 0**
Flange DN 50 PN 40 Form D, DIN 2501/ Alloy C22 (2.4602)	**B 3 1**
Flange DN 50 PN 40 Form F, DIN 2501/316L	**B 3 2**
Flange DN 50 PN 40 Form N, DIN 2501/316L	**B 3 3**
Flange DN 50 PN 40 Form N, DIN 2501/ Alloy C22 (2.4602) solid	**B 3 4**
Flange DN 50 PN 40 Form E, DIN 2501/316L	**B 3 5**
Flange DN 50 PN 40 V13, DIN 2501/316L	**B 3 6**
Flange DN 50 PN 40 R13, DIN 2501/316L	**B 3 7**
Flange DN 50 PN 64 Form F, DIN 2501/316L	**B 3 8**
Flange DN 50 PN 64 Form N, DIN 2501/ Alloy C22 (2.4602) plated	**B 4 0**
Flange DN 50 PN 64 Form C, DIN 2501/316L	**B 4 1**
Flange DN 50 PN 64 Form L, DIN 2501/316L	**B 4 2**
Flange DN 50 PN 100 Form E, DIN 2501/316L	**B 4 3**
Flange DN 50 PN 100 Form L, DIN 2501/316L	**B 4 4**
Flange DN 65 PN 40 Form C, DIN 2501/316L	**B 4 5**
Flange DN 65 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 4 6**

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SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
Flange DN 65 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 4 7**
Flange DN 65 PN 40 Form C, DIN 2501/PFA[4)]	**B 4 8**
Flange DN 65 PN 40 Form F, DIN 2501/316L	**B 5 0**
Flange DN 65 PN 64 Form E, DIN 2501/316L	**B 5 1**
Flange DN 80 PN 40 Form C, DIN 2501/316L	**B 5 2**
Flange DN 80 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 5 3**
Flange DN 80 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 5 4**
Flange DN 80 PN 40 Form C, DIN 2501/PFA[4)]	**B 5 5**
Flange DN 80 PN 40 Form F, DIN 2501/316L	**B 5 6**
Flange DN 80 PN 40 Form N, DIN 2501/316L	**B 5 7**
Flange DN 80 PN 40 Form N, DIN 2501/ Alloy C22 (2.4602) plated	**B 5 8**
Flange DN 100 PN 16 Form C, DIN 2501/316L	**B 6 0**
Flange DN 100 PN 16 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 6 1**
Flange DN 100 PN 16 Form C, DIN 2501/ECTFE[4)]	**B 6 2**
Flange DN 100 PN 16 Form C, DIN 2501/PFA[4)]	**B 6 3**
Flange DN 100 PN 16 Form D, DIN 2501/316L	**B 6 4**
Flange DN 100 PN 16 Form F, DIN 2501/316L	**B 6 5**
Flange DN 100 PN 16 Form N, DIN 2501/316L	**B 6 6**
Flange DN 100 PN 40 Form C, DIN 2501/316L	**B 6 7**
Flange DN 100 PN 40 Form C, DIN 2501/ECTFE[4)]	**B 6 8**
Flange DN 100 PN 40 Form C, DIN 2501/PFA[4)]	**B 7 0**
Flange DN 100 PN 40 Form C, DIN 2501/ Enamelled[3)]	**B 7 1**
Flange DN 100 PN 40 Form F, DIN 2501/316L	**B 7 2**
Flange DN 100 PN 40 Form N, DIN 2501/316L	**B 7 3**
Flange DN 100 PN 40 V13, DIN 2501/316L	**B 7 4**
Flange DN 100 PN 64 Form E, DIN 2501/316L	**B 7 5**
Flange DN 100 PN 100 Form E, DIN 2501/316L	**B 7 6**
Flange DN 100 PN 100 Form L, DIN 2501/316L	**B 7 7**
Flange DN 125 PN 16 Form F, DIN 2501/316L	**B 7 8**
Flange DN 125 PN 40 Form C, DIN 2501/316L	**B 8 0**
Flange DN 125 PN 40 Form N, DIN 2512/316L	**B 8 1**
Flange DN 150 PN 16 Form C, DIN 2501/316L	**B 8 2**
Flange DN 150 PN 16 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 8 3**
Flange DN 150 PN 16 Form C, DIN 2501/ECTFE[4)]	**B 8 4**
Flange DN 150 PN 16 Form C, DIN 2501/PFA[4)]	**B 8 5**
Flange DN 150 PN 16 Form D, DIN 2501/316L	**B 8 6**
Flange DN 150 PN 40 Form C, DIN 2501/316L	**B 8 7**
Flange DN 150 PN 40 Form C, DIN 2501/ Alloy C22 (2.4602) plated	**B 8 8**
Flange DN 150 PN 40 Form F, DIN 2501/316L	**C 0 0**
Flange DN 150 PN 40 Form N, DIN 2512/316L	**C 0 1**
Flange DN 200 PN 10 Form C, DIN 2501/ECTFE[4)]	**C 0 2**
Flange DN 200 PN 16 Form C, DIN 2501/316L	**C 0 3**
Flange DN 25 PN 40 Form B1, EN 1092-1/316L	**C 0 4**
Flange DN 25 PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602) plated	**C 0 5**
Flange DN 25 PN 40 Form B1, EN/316L/PFA[4)]	**C 0 6**
Flange DN 25 PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 0 7**
Flange DN 25 PN 40 Form B2, EN 1092-1/316L	**C 0 8**
Flange DN 25 PN 40 Form F, EN 1092-1/316L	**C 1 0**
Flange DN 25 PN 63 Form B1, EN 1092-1/316L	**C 1 1**
Flange DN 25 PN 100 Form B2, EN 1092-1/316L	**C 1 2**
Flange DN 40 PN 40 Form B1, EN/316L	**C 1 3**
Flange DN 40 PN 40 Form B1, EN 1092-1/PFA[4)]	**C 1 4**
Flange DN 40 PN 40 Form B2, EN/316L	**C 1 5**

Selection and Ordering data	Article No.
SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
Flange DN 50 PN 40 Form B1, EN/316L	**C 1 6**
Flange DN 50 PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602) plated	**C 1 7**
Flange DN 50 PN 40 Form B1,EN 1092-1/ Alloy 400 (2.4360) ZB2977	**C 1 8**
Flange DN 50 PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 2 0**
Flange DN 50 PN 40 Form B1, EN/316L/PFA[4)]	**C 2 1**
Flange DN 50 PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 2 2**
Flange DN 50 PN 40 Form C, EN 1092-1/316L	**C 2 3**
Flange DN 50 PN 40 Form D, EN/316L	**C 2 4**
Flange DN 50 PN 40 Form D, EN 1092-1/ Alloy C22 (2.4602) plated	**C 2 5**
Flange DN 50 PN 40 Form B2, EN 1092-1/316L	**C 2 6**
Flange DN 50 PN 40 Form E, EN 1092-1/316L	**C 2 7**
Flange DN 80 PN 40 Form B1, EN 1092-1/316L	**C 2 8**
Flange DN 80 PN 40 Form B1, EN 1092-1/ Alloy C22 (2.4602) plated	**C 3 0**
Flange DN 80 PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 3 1**
Flange DN 80 PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 3 2**
Flange DN 80 PN 40 Form B2, EN 1092-1/316L	**C 3 3**
Flange DN 100 PN 16 Form B1, EN 1092-1/316L	**C 3 4**
Flange DN 100 PN 16 Form B1, EN 1092-1/ Alloy C22 (2.4602) plated	**C 3 5**
Flange DN 100 PN 16 Form B1, EN 1092-1/ Enamelled[3)]	**C 3 6**
Flange DN 100 PN 40 Form B1, EN 1092-1/316L	**C 3 7**
Flange DN 100 PN 40 Form B1, EN 1092-1/ Enamelled[3)]	**C 3 8**
Flange DN 100 PN 40 Form C, EN 1092-1/316L	**C 4 0**
Flange DN 100 PN 63 Form B2, EN 1092-1/316L	**C 4 1**
Flange DN 150 PN 16 Form B1, EN 1092-1/316L	**C 4 2**
Flange DN 150 PN 16 Form B1, EN 1092-1/PFA[4)]	**C 4 3**
Flange DN 150 PN 40 Form B1, EN 1092-1/316L	**C 4 4**
Flange DN 150 PN 40 Form B1, EN 1092-1/ECTFE[4)]	**C 4 5**
Flange DN 150 PN 40 Form B2, EN 1092-1/316L	**C 4 6**
Flange 1" 150 lb ASME B16.5/316L	**C 4 7**
Flange 1" 150 lb RF, ASME B16.5/ Alloy C22 (2.4602) plated	**C 4 8**
Flange 1" 150 lb RF, ASME B16.5// Alloy 400 (2.4360) ZB2977	**C 5 0**
Flange 1" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 5 1**
Flange 1" 150 lb RF, ASME B16.5/PFA[4)]	**C 5 2**
Flange 1" 150 lb RF, ASME B16.5/Enamelled[3)]	**C 5 3**
Flange 1" 300 lb RF, ASME B16.5/316L	**C 5 4**
Flange 1" 300 lb RF, ASME B16.5/ECTFE[4)]	**C 5 5**
Flange 1" 600 lb RF, ASME B16.5/316L	**C 5 6**
Flange 1½" 150 lb RF, ASME B16.5/316L	**C 5 7**
Flange 1½" 150 lb RF, ASME B16.5/ Alloy C22 (2.4602) plated	**C 5 8**
Flange 1½" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 6 0**
Flange 1½" 150 lb RF, ASME B16.5/PFA[4)]	**C 6 1**
Flange 1½" 150 lb RF, ASME B16.5 Enamelled[3)]	**C 6 2**
Flange 1½" 150 lb FF, ASME B16.5/ECTFE[4)]	**C 6 3**
Flange 1½" 300 lb RF, ASME B16.5/316L	**C 6 4**
Flange 1½" 300 lb RF, ASME B16.5/ Alloy 400 (2.4360) ZB2977	**C 6 5**
Flange 1½" 300 lb RF, ASME B16.5/ECTFE[4)]	**C 6 6**

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SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**
Flange 1½" 600 lb RF, ASME B16.5/316L	**C 6 7**
Flange 2" 150 lb RF, ASME B16.5/316L	**C 6 8**
Flange 2" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**C 7 0**
Flange 2" 150 lb RF, ASME B16.5/ Alloy 400 (2.4360) ZB2977	**C 7 1**
Flange 2" 150 lb RF, ASME B16.5/ECTFE[4)]	**C 7 2**
Flange 2" 150 lb RF, ASME B16.5/PFA[4)]	**C 7 3**
Flange 2" 150 lb RF, ASME B16.5/Enamelled[3)]	**C 7 4**
Flange 2" 150 lb FF, ASME B16.5/316L	**C 7 5**
Flange 2" 150 lb FF, ASME B16.5/ECTFE[4)]	**C 7 6**
Flange 2" 150 lb SG (small groove), ASME B16.5/316L	**C 7 7**
Flange 2" 300 lb RF, ASME B16.5/316L	**C 7 8**
Flange 2" 300 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**C 8 0**
Flange 2" 300 lb RF, ASME B16.5/ECTFE[4)]	**C 8 2**
Flange 2" 300 lb RF, ASME B16.5/PFA[4)]	**C 8 3**
Flange 2" 300 lb RJF, ASME B16.5/316L	**C 8 5**
Flange 2" 300 lb ST, ASME B16.5/316L	**C 8 6**
Flange 2" 300 lb LG (large groove), ASME B16.5/316L	**C 8 7**
Flange 2" 300 lb LT, ASME B16.5/316L	**C 8 8**
Flange 2" 600 lb RF, ASME B16.5/316L	**D 0 0**
Flange 2" 600 lb RF, ASME B16.5/Alloy 400 (2.4360) ZB2977	**D 0 1**
Flange 2" 600 lb RF, ASME B16.5/ECTFE[4)]	**D 0 2**
Flange 2" 600 lb RJF, ASME B16.5/316L	**D 0 3**
Flange 2" 600 lb LG, ASME B16.5/316L	**D 0 4**
Flange 2" 900 lb RJF, ASME B16.5/316L	**D 0 5**
Flange 2½" 150 lb RF, ASME B16.5/316L	**D 0 6**
Flange 2½" 300 lb RF, ASME B16.5/316L	**D 0 7**
Flange 3" 150 lb RF, ASME B16.5/316L	**D 0 8**
Flange 3" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**D 1 0**
Flange 3" 150 lb RF, ASME B16.5/Alloy 400 (2.4360) ZB2977	**D 1 1**
Flange 3" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 1 2**
Flange 3" 150 lb RF, ASME B16.5/PFA[4)]	**D 1 3**
Flange 3" 150 lb RF, ASME B16.5/Enamelled[3)]	**D 1 4**
Flange 3" 150 lb FF, ASME B16.5/316L	**D 1 5**
Flange 3" 150 lb FF, ASME B16.5/ECTFE[4)]	**D 1 6**
Flange 3" 150 lb FF, ASME B16.5/PFA[4)]	**D 1 7**
Flange 3" 300 lb RF, ASME B16.5/316L	**D 1 8**
Flange 3" 300 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**D 2 0**
Flange 3" 300 lb RF, ASME B16.5/ECTFE[4)]	**D 2 1**
Flange 3" 300 lb RF, ASME B16.5/PFA[4)]	**D 2 2**
Flange 3" 300 lb RF, ASME B16.5/Enamelled[3)]	**D 2 3**
Flange 3" 600 lb RF, ASME B16.5/316L	**D 2 4**
Flange 3½" 150 lb RF, ASME B16.5/316L	**D 2 5**
Flange 3½" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 2 6**
Flange 4" 150 lb RF, ASME B16.5/316L	**D 2 7**
Flange 4" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**D 2 8**
Flange 4" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 3 0**
Flange 4" 150 lb RF, ASME B16.5/PFA[4)]	**D 3 1**
Flange 4" 150 lb RF, ASME B16.5/Enamelled[3)]	**D 3 2**
Flange 4" 150 lb LT, ASME B16.5/316L	**D 3 3**

SITRANS LVL200

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SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-**	-	
Flange 4" 300 lb RF, ASME B16.5/316L	**D 3 4**		
Flange 4" 300 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**D 3 5**		
Flange 4" 300 lb RF, ASME B16.5/ECTFE[4)]	**D 3 6**		
Flange 4" 300 lb RJF, ASME B16.5/316L	**D 3 7**		
Flange 4" 300 lb LG, ASME B16.5/316L	**D 3 8**		
Flange 4" 300 lb LT, ASME B16.5/316L	**D 4 0**		
Flange 4" 600 lb RF, ASME B16.5/316L	**D 4 1**		
Flange 4" 600 lb RJF, ASME B16.5/316L	**D 4 2**		
Flange 5" 150 lb RF, ASME B16.5/316L	**D 4 3**		
Flange 6" 150 lb RF, ASME B16.5/316L	**D 4 4**		
Flange 6" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) plated	**D 4 5**		
Flange 6" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 4 6**		
Flange 6" 150 lb RF, ASME B16.5/PFA[4)]	**D 4 7**		
Flange 6" 150 lb RJF, ASME B16.5/316L	**D 4 8**		
Flange 6" 300 lb RF, ASME B16.5/316L	**D 5 0**		
Flange 8" 150 lb RF, ASME B16.5/316L	**D 5 1**		
Flange 8" 150 lb RF, ASME B16.5/ECTFE[4)]	**D 5 2**		
Flange 1" BS.10 Table E/316L	**D 5 3**		
Flange 1" BS.10 Table E/PFA[4)]	**D 5 4**		
Flange 1½" BS.10 Table E/316L	**D 5 5**		
Flange 3½" BS.10 Table E/316L	**D 5 6**		
Flange 4" BS.10 Table E/ECTFE[4)]	**D 5 7**		
Flange DN 40 10K, JIS/316L	**D 5 8**		
Flange DN 50 10K, JIS/316L	**D 6 0**		
Flange DN 80 10K, JIS/316L	**D 6 1**		
Flange DN 100 10K, JIS/316L	**D 6 2**		
Thread R1 PN64, EN10226-1/316L[11)]	**D 6 5**		
Flange 2" 900 lb RF, ASME B16.5/316L	**D 7 0**		
Flange 4" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**D 7 1**		
Adapter/Process temperature			
Without adapter/-50 ... +150 °C		**1**	
With adapter/-50 ... +200 °C[13)]		**2**	
With adapter/-50 ... +250 °C[10)]		**3**	
With gas-tight leadthrough/-50 ... +150 °C		**4**	
With gas-tight leadthrough/-50 ... +250 °C[10)]		**5**	
Housing/Cable entry			
Aluminum IP66/IP67/M20 x 1.5			**A**
Aluminum IP66/IP67/½" NPT			**B**
316L stainless steel (electropolished) IP66/IP67/M20 x 1.5			**C**
316L stainless steel (electropolished) IP66/IP67/½" NPT			**D**
Plastic single chamber IP66/IP67/M20 x 1.5			**E**
Plastic single chamber IP66/IP67/½" NPT			**F**
Stainless steel chamber (precision casting) IP66/IP67/M20 x 1.5			**G**
Stainless steel chamber (precision casting) IP66/IP67/½" NPT			**H**
Aluminum IP66/IP67/M20 x 1.5 Special HARTING plug (bent) according to Tier One (ZB7555)			**V**
NOTE: **When selecting a Rigid Extension option, extension coating must match the process connection coating and the material and surface roughness type.**			
Rigid Extension 316L			
80 ... 500 mm			**A 0**
501 ... 1 000 mm			**A 1**
1 001 ... 1 500 mm			**A 2**

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1 501 ... 2 000 mm			**A 3**
2 001 ... 2 500 mm			**A 4**
2 501 ... 3 000 mm			**A 5**
3 001 ... 3 500 mm			**A 6**
3 501 ... 4 000 mm			**A 7**
Rigid Extension ECTFE coated			
80 ... 500 mm			**B 0**
501 ... 1 000 mm			**B 1**
1 001 ... 1 500 mm			**B 2**
1 501 ... 2 000 mm			**B 3**
2 001 ... 2 500 mm			**B 4**
2 501 ... 3 000 mm			**B 5**
Rigid Extension PFA coated			
80 ... 500 mm			**C 0**
501 ... 1 000 mm			**C 1**
1 001 ... 1 500 mm			**C 2**
1 501 ... 2 000 mm			**C 3**
2 001 ... 2 500 mm			**C 4**
2 501 ... 3 000 mm			**C 5**
3 001 ... 3 500 mm			**C 6**
3 501 ... 4 000 mm			**C 7**
Rigid Extension 316L Ra ≤ 0.8 µm			
80 ... 500 mm			**D 0**
501 ... 1 000 mm			**D 1**
1 001 ... 1 500 mm			**D 2**
1 501 ... 2 000 mm			**D 3**
2 001 ... 2 500 mm			**D 4**
2 501 ... 3 000 mm			**D 5**
3 001 ... 3 500 mm			**D 6**
3 501 ... 4 000 mm			**D 7**
Rigid Extension 316L Ra ≤ 0.3 µm			
80 ... 500 mm			**E 0**
501 ... 1 000 mm			**E 1**
1 001 ... 1 500 mm			**E 2**
1 501 ... 2 000 mm			**E 3**
2 001 ... 2 500 mm			**E 4**
2 501 ... 3 000 mm			**E 5**
3 001 ... 3 500 mm			**E 6**
3 501 ... 4 000 mm			**E 7**
Rigid Extension Enamelled version			
80 ... 250 mm			**F 0**
251 ... 500 mm			**F 1**
501 ... 750 mm			**F 2**
751 ... 1 000 mm			**F 3**
1 001 ... 1 250 mm			**F 4**
1 251 ... 1 500 mm			**F 5**
Rigid Extension Alloy C22 (2.4602)			
80 ... 500 mm			**G 0**
501 ... 1 000 mm			**G 1**
1 001 ... 1 500 mm			**G 2**
1 501 ... 2 000 mm			**G 3**
2 001 ... 2 500 mm			**G 4**
2 501 ... 3 000 mm			**G 5**
3 001 ... 3 500 mm			**G 6**
3 501 ... 4 000 mm			**G 7**

Selection and Ordering data	Article No.
SITRANS LVL200, Rigid extension Compact vibrating level switch for material detection in liquid applications such as overflow, high, low, and demand applications, as well as pump protection. For use in SIL-2 and hazardous applications.	**7ML5747-** ■■■■■ - ■■■■
Rigid Extension Alloy 400 (2.4360)	
80 ... 500 mm	**H 0**
501 ... 1 000 mm	**H 1**
1 001 ... 1 500 mm	**H 2**
1 501 ... 2 000 mm	**H 3**
2 001 ... 2 500 mm	**H 4**
2 501 ... 3 000 mm	**H 5**

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Switching status indication with colors red-green[12)]	**A21**
Cleaning including Certificate (oil, grease, and silicone free)	**W01**
Enter the total insertion length in plain text description, max. 4 000 mm (157.48 inch)	**Y01**
Identification label (measurement loop) stainless steel: max. 40 characters, add in plain text. To add more than one line, use a coma "," for line break.	**Y17**
Identification Label (measurement loop) foil: max. 40 characters add in plain text. To add more than one line, use a coma "," for line break.	**Y18**
NACE0175 to 3.1 Material Certificate for material (EN10204 NACE MR 0175)[8)] Note: not available with Process connection and Rigid extension coatings PFA, ECTFE, and Enamel. NACE not available with Hygienic process connections.	**D07**
Material Inspection certificate 3.1 of EN 10204[8)]	**C05**
2.2-Factory certificate for material (EN 10204)[8)]	**C15**
Functional Safety (SIL 2). Device suitable for use in accordance with IEC 61508 and IEC 61511[8)]	**C20**
Dye penetration test, results confirmed via a 3.1 certificate/instrument (EN 10204)[8)]	**C13**
X-ray test + 3.1 certificate/instrument[8)]	**C14**
Positive material identification test + 3.1 certificate/instrument[8)]	**C16**
Roughness test + 3.1 certificate/instrument[8)]	**C18**
3.1-Inspection Certificate for instrument with test data (EN 10204)	**C25**
Quality and test plan	**C26**
Pressure test + 3.1 certificate/instrument[8)]	**C31**
Helium leak test + 3.1 certificate/instrument[8)]	**C32**
Ferrite measuring accuracy to DIN 32514-1 + 3.1 certificate/instrument[8)]	**C60**
Pressure test according to Norsok + 3.1 certificate/instrument[8)]	**C61**
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

Selection and Ordering data	Article No.
Spare Parts and Accessories	
Electronics module SITRANS LVL200 Relay	**7ML1830-1NC**
Electronics module SITRANS LVL200 Contactless	**7ML1930-6AA**
NAMUR spare electronics module	**A5E35817107**
SITRANS SCSC single channel signal conditioner and remote test	**7ML5760**
SITRANS TCSC two channel signal conditioner and remote test	**7ML5761**
Lock fitting, unpressurized, G1" A/316L	**7ML1930-1DQ**
Lock fitting, unpressurized, 1" NPT/316L	**7ML1930-1DR**
Lock fitting, unpressurized, G1 ...1/2" A/316L	**7ML1930-1DS**
Lock fitting, unpressurized, 1 ... 1/2" NPT/316L	**7ML1930-1DT**
Lock fitting, -1 ... 16 bar, G1" A/316L	**7ML1930-1DU**
Lock fitting, -1 ... 16 bar, 1" NPT/316L	**7ML1930-1DV**
Lock fitting, -1 ... 16 bar, G1 ... 1/2" A/316L	**7ML1930-1DW**
Lock fitting, -1 ... 16 bar, 1 ... 1/2" NPT/316L	**7ML1930-1DX**
Lock fitting, -1 ... 64 bar, G1" A/316L	**7ML1930-1EA**
Lock fitting, -1 ... 64 bar, 1" NPT/316L	**7ML1930-1EB**
Lock fitting, -1 ... 64 bar, G1 ... 1/2" A/316L	**7ML1930-1EC**
Lock fitting, -1 ... 64 bar, 1 ... 1/2" NPT/316L	**7ML1930-1ED**

1) Available only with Adapter/Process temperature options 1, 3, 4, and 5.
2) Available only with Housing/Cable entry option B.
3) Available only with Adapter/Process temperature options 1, 2, and 4.
4) Not available with Adapter/Process temperature options 2, 3, and 5.
5) Not available with Adapter/Process temperature options 2, 4, and 5.
6) Available only with Electronics options 4 and 6.
7) Available only with rigid extension options less than 3 001 mm.
8) Listed Certificates are not available with all configurations please contact factory for more information.
9) Not available with Housing/Protection/Cable option V.
10) Not available with PFA, ECTFE, and enamelled coating options.
11) Available only with some 316L extensions.
12) Available only with relay electronic options and non-hazardous Approval options.
13) Available only with Enamelled Process connection/Material options.
14) Not available with Approval options C, E, G, H, L, N, V, and W.
15) Not available with Approval options C, E, G, H, N, and V.
16) Only available with Aluminum Housing/Protection/Cable options and certain glands.
17) Not available with Stainless Steel Electropolish Housing/Protection/Cable options and certain glands.
18) Not available with Plastic or Stainless Steel Electropolish Housing/Protection/Cable options and certain glands.
19) Not available with Housing/Protection/Cable options D and V.
20) Not available with Housing/Protection/Cable options A, E, G, and V.
21) Not available with some Housing/Protection/Cable gland options.
22) Not available with Housing/Protection/Cable options A, C, and V.

SITRANS LVL200

Selection and Ordering data	Article No.
SITRANS LVL200, High temperature ↗ Rigid extended vibrating level switch for use in aggressive liquids and hazardous applications such as overflow, high, and low demand applications, as well as pump protection. For use in SIL-2 applications.	**7ML5748-**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Version/Material	
Compact version/Inconel 718 (2.4668)[1)2)]	1
With tube extension/316L and Inconel 718 (2.4668)[1)3)]	2
With tube extension/Alloy C22 (2.4602) and Inconel 718 (2.4668)[4)]	3
Approvals	
Without approvals	A
Process connection	
Thread G1 PN 100, DIN 3852-A/316L	A 0
Thread G1 PN 160, DIN 3852-A/ Inconel 718 (2.4668)	A 1
Thread 1" NPT PN 100, ASME B1.20.1/316L	A 2
Thread 1" NPT PN 160, ASME B1.20.1/ Inconel 718 (2.4668)	A 3
Flange DN 50 PN 40 Form C, DIN 2501/316/316	A 4
Flange DN 50 PN 40 Form C, DIN 2501/316/316L, with Alloy C22 (2.4602) coating	A 5
Flange DN 50 PN 40 Form N, DIN 2501/316/316L	A 6
Flange DN 50 PN 40 Form V13, DIN 2501/316/316L	A 7
Flange DN 50 PN 40 Form V13, DIN 2501/Alloy C22 (2.4602) solid	A 8
Flange DN 50 PN 40 Form V13, DIN 2501/316/ 316L, with Alloy C22 (2.4602) coating	B 0
Flange DN 50 PN 64 Form E, DIN 2501/316/316L	B 1
Flange DN 50 PN 100 Form C, DIN 2501/316/316L	B 2
Flange DN 50 PN 100 Form F, DIN 2501/316/316L	B 3
Flange DN 50 PN 100 Form V13, DIN 2501/ 316/316L	B 4
Flange DN 50 PN 160 Form C, DIN 2501/316/316L	B 5
Flange DN 50 PN 160 Form F, DIN 2501/316/316L	B 6
Flange DN 65 PN 16 Form C, DIN 2501/316/316L	B 7
Flange DN 65 PN 40 Form C, DIN 2501/316/316L	B 8
Flange DN 65 PN 100 Form C, DIN 2501/316/316L	C 0
Flange DN 80 PN 40 Form C, DIN 2501/316/316L	C 1
Flange DN 80 PN 100 Form C, DIN 2501/316/316L	C 2
Flange DN 80 PN 160 Form F, DIN 2501/316/316L	C 3
Flange DN 80 PN 160 Form L, DIN 2501/316/316L	C 4
Flange DN 80 PN 250 Form L, DIN 2501/316/316L	C 5
Flange DN 80 PN 250 Form L, DIN 2501/ Alloy C22 (2.4602) solid	C 6
Flange DN 100 PN 16 Form C, DIN 2501/316/316L	C 7
Flange DN 100 PN 40 Form C, DIN 2501/316/316L	C 8
Flange DN 100 PN 100 Form E, DIN 2501/316/316L	D 0
Flange DN 100 PN 160 Form L, DIN 2501/316/316L	D 1
Flange DN 125 PN 16 Form C, DIN 2501/316/316L	D 2
Flange DN 125 PN 40 Form C, DIN 2501/316/316L	D 3
Flange DN 150 PN 16 Form C, DIN 2501/316/316L	D 4
Flange DN 150 PN 16 Form C, DIN 2501/316/316L, with Alloy C22 (2.4602) coating	D 5
Flange DN 150 PN 40 Form C, DIN 2501/316/316L	D 6
Flange DN 150 PN 160 Form L, DIN 2501/316/316L	D 7
Flange DN 200 PN 16 Form C, DIN 2501/316/316L	D 8
Flange DN 200 PN 64 Form C, DIN 2501/316/316L	E 0

Selection and Ordering data	Article No.
SITRANS LVL200, High temperature Rigid extended vibrating level switch for use in aggressive liquids and hazardous applications such as overflow, high, and low demand applications, as well as pump protection. For use in SIL-2 applications.	**7ML5748-**
Flange DN 250 PN 16 Form C, DIN 2501/316/316L	E 1
Flange DN 250 PN 64 Form C, DIN 2501/316/316L	E 2
Flange DN 50 PN 40 Form B1, EN 1092-1/1.4435	E 3
Flange DN 50 PN 40 Form B1, EN 1092-1/316/316L	E 4
Flange DN 50 PN 40 Form B1, EN 1092-1/ 316/316L, with Alloy C22 (2.4602) coating	E 5
Flange DN 50 PN 40 Form B2, EN1092-1/316/316L	E 6
Flange DN 50 PN 40 Form C, EN 1092-1/316/316L	E 7
Flange DN 50 PN 40 Form D, EN 1092-1/316/316L	E 8
Flange DN 50 PN 40 Form E, EN 1092-1/316/316L	F 0
Flange DN 50 PN 63 Form B2, EN 1092-1/316/316L	F 1
Flange DN 50 PN 63 Form B2, EN 1092-1/ 316/ 316L, with Alloy C22 (2.4602) coating	F 2
Flange DN 50 PN 63 Form C, EN 1092-1/316/316L	F 3
Flange DN 50 PN 63 Form D, EN 1092-1/316/316L	F 4
Flange DN 50 PN 100 Form B1, EN 1092-01/ 316/ 316L	F 5
Flange DN 50 PN 100 Form C, EN 1092-1/316/316L	F 6
Flange DN 50 PN 160 Form B1, EN 1092-1/ 316/ 316L	F 7
Flange DN 50 PN 160 Form B2, EN 1092-1/ 316/ 316L	F 8
Flange DN 50 PN 250 Form B1, EN 1092-1/ 316/ 316L	G 0
Flange DN 50 PN 250 Form B2, EN 1092-1/ 316/ 316L	G 1
Flange DN 65 PN 40 Form B1, EN 1092-1/ 316/ 316L	G 2
Flange DN 65 PN 63 Form C, EN 1092-1/316/316L	G 3
Flange DN 80 PN 40 Form B1, EN 1092-1/316/316L	G 4
Flange DN 80 PN 40 Form B2, EN 1092-1/316/316L	G 5
Flange DN 80 PN 40 Form C, EN 1092-1/316/316L	G 6
Flange DN 80 PN 40 Form D, EN 1092-1/316/316L	G 7
Flange DN 80 PN 63 Form B2, EN 1092-1/316/316L	G 8
Flange DN 80 PN 160 Form B2, EN 1092-1/ 316/ 316L	H 0
Flange DN 80 PN 250 Form B1, EN 1092-1/ 316/ 316L	H 1
Flange DN 100 PN 16 Form D, EN 1092-1/316/ 316L	H 2
Flange DN 100 PN 40 Form B1, EN 1092-1/316/ 316L	H 3
Flange DN 100 PN 40 Form B2, EN 1092-1/ 316/ 316L	H 4
Flange DN 100 PN 40 Form C, EN 1092-1/ 316/ 316L	H 5
Flange DN 100 PN 40 Form D, EN 1092-1/ 316/ 316L	H 6
Flange DN 100 PN 160 Form B2, EN 1092-1/ 316/ 316L	H 7
Flange DN 125 PN 63 Form C, EN 1092-1/ 316/ 316L	H 8
Flange DN 125 PN 160 Form B2, EN 1092-1/ 316/ 316L	K 0
Flange DN 150 PN 40 Form B1, EN 1092-1/ 316/ 316L	K 1
Flange DN 150 PN 40 Form C, EN 1092-1/316/316L	K 2
Flange DN 150 PN 40 Form D, EN 1092-1/316/316L	K 3
Flange DN 40 PN 100, GOST 12815-80.7/316/316L	K 4
Flange DN 50 PN 100, GOST 12815-80.7/316/316L	K 5
Flange DN 80 PN 100, GOST 12815-80.7/316/316L	K 6
Flange DN 100 PN 100, GOST 12815-80.7/ 316/ 316L	K 7
Flange 1½" 150 lb RJF, ASME B16.5/316/316L	K 8

Selection and Ordering data	Article No.
SITRANS LVL200, High temperature Rigid extended vibrating level switch for use in aggressive liquids and hazardous applications such as overflow, high, and low demand applications, as well as pump protection. For use in SIL-2 applications.	**7ML5748-** ☐☐☐☐☐ - ☐☐☐☐
Flange 1½" 300 lb RJF, ASME B16.5/316/316L	**L 1**
Flange 1½" 1 500 lb RJF, ASME B16.5/316/316L	**L 2**
Flange 2" 150 lb RF, ASME B16.5/316/316L	**L 3**
Flange 2" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**L 4**
Flange 2" 300 lb RF, ASME B16.5/316/316L	**L 5**
Flange 2" 300 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**L 6**
Flange 2" 300 lb RF, ASME B16.5/316/316L, with Alloy C22 (2.4602) coating	**L 7**
Flange 2" 300 lb ST (small tongue), ASME B16.5/316/316L	**L 8**
Flange 2" 300 lb RJF, ASME B16.5/316/316L	**M 1**
Flange 2" 300 lb LM (large male), ASME B16.5/316/316L	**M 2**
Flange 2" 300 lb SG, ASME B16.5/316/316L	**M 3**
Flange 2" 300 lb LG, ASME B16.5/316/316L	**M 4**
Flange 2" 600 lb RF, ASME B16.5/316/316L	**M 5**
Flange 2" 600 lb RF, ASME B16.5/316/316L, with Alloy C22 (2.4602) coating	**M 6**
Flange 2" 600 lb RJF, ASME B16.5/316/316L	**M 7**
Flange 2" 900 lb RF, ASME B16.5/316/316L	**M 8**
Flange 2" 900 lb RJF, ASME B16.5/316/316L	**N 1**
Flange 2" 1 500 lb RF, ASME B16.5/316/16L	**N 2**
Flange 2" 1 500 lb RJF, ASME B16.5/316/316L	**N 3**
Flange 2" 1 500 lb LT, ASME B16.5/Alloy C22 (2.4602) solid	**N 4**
Flange 2" 1 500 lb LM, ASME B16.5/316/316L	**N 5**
Flange 2" 2 500 lb RJF, ASME B16.5/316/316L	**N 6**
Flange 2½" 150 lb RF, ASME B16.5/316/316L	**N 7**
Flange 2½" 300 lb RF, ASME B16.5/316/316L	**N 8**
Flange 2½" 600 lb RF, ASME B16.5/316/316L	**P 1**
Flange 2½" 900 lb RF, ASME B16.5/316/316L	**P 2**
Flange 2½" 2 500 lb RJF, ASME B16.5/316/316L	**P 3**
Flange 3" 150 lb RF, ASME B16.5/316/316L	**P 4**
Flange 3" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**P 5**
Flange 3" 300 lb RF, ASME B16.5/316/316L	**P 6**
Flange 3" 300 lb RJF, ASME B16.5/316/316L	**P 7**
Flange 3" 300 lb LT, ASME B16.5/316/316L	**P 8**
Flange 3" 600 lb RF, ASME B16.5/316/316L	**R 1**
Flange 3" 600 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**R 2**
Flange 3" 600 lb RF, ASME B16.5/316/316L, with Alloy C22 (2.4602) coating	**R 3**
Flange 3" 600 lb RJF, ASME B16.5/316/316L	**R 4**
Flange 3" 900 lb RF, ASME B16.5/316/316L	**R 5**
Flange 3" 900 lb RJF, ASME B16.5/316/316L	**R 6**
Flange 3" 1 500 lb RF, ASME B16.5/316/316L	**R 7**
Flange 3" 1500lb RJF, ASME B16.5 / 316/316L	**R 8**
Flange 3" 2 500 lb RF, ASME B16.5/316/316L	**S 1**
Flange 3" 2 500 lb RJF, ASME B16.5/316/316L	**S 2**
Flange 4" 150 lb RF, ASME B16.5/316/316L	**S 3**
Flange 4" 150 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**S 4**
Flange 4" 150 lb RJF, ASME B16.5/316/316L	**S 5**
Flange 4" 300 lb RF, ASME B16.5/316/316L	**S 6**
Flange 4" 300 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**S 7**
Flange 4" 300 lb LT, ASME B16.5/316/316L	**S 8**
Flange 4" 600 lb RF, ASME B16.5/316/316L	**T 1**

Selection and Ordering data	Article No.
SITRANS LVL200, High temperature Rigid extended vibrating level switch for use in aggressive liquids and hazardous applications such as overflow, high, and low demand applications, as well as pump protection. For use in SIL-2 applications.	**7ML5748-** ☐☐☐☐☐ - ☐☐☐☐
Flange 4" 600 lb RF, ASME B16.5/Alloy C22 (2.4602) solid	**T 2**
Flange 4" 600 lb RJF, ASME B16.5/316/316L	**T 3**
Flange 4" 900 lb RF, ASME B16.5/316/316L	**T 4**
Flange 4" 900 lb RJF, ASME B16.5/316/316L	**T 5**
Flange 4" 900 lb LT, ASME B16.5/316/316L	**T 6**
Flange 4" 1 500 lb RF, ASME B16.5/316/316L	**T 7**
Flange 4" 1 500 lb RJF, ASME B16.5/316/316L	**T 8**
Flange 4" 1 500 lb LT, ASME B16.5/316/316L	**U 1**
Flange 5" 150 lb RF, ASME B16.5/316/316L	**U 2**
Flange 5" 300 lb RF, ASME B16.5/316/316L	**U 3**
Flange 5" 600 lb RJF, ASME B16.5/316/316L	**U 4**
Flange 6" 150 lb RF, ASME B16.5/316/316L	**U 5**
Flange 6" 300 lb RF, ASME B16.5/316/316L	**U 6**
Flange 6" 300 lb LT, ASME B16.5/316/316L	**U 7**
Flange DN 50 30K RF, JIS/316/316L	**U 8**
Flange DN 50 40K RF, JIS/316/316L	**V 1**
Flange DN 65 40 K RF, JIS/316/316L	**V 2**
Mobrey flange PN 16 Form A/316/316L	**V 3**
Mobrey flange PN 16 Form E/316/316L	**V 4**
Adapter/Process temperature	
With adapter/-196 ... +450 °C (-321 ... +842 °F)	**1**
Without/-196 ... +450 °C (-321 ... +842 °F)	**2**
Electronics	
Relay (2 x SPDT) 20 .. 72 V DC/20 ... 253 V AC (5A)	**1**
Transistor (NPN/PNP) 9.6 ... 55 V DC	**2**
Two-wire (8/16 mA) 9.6 ... 35 V DC	**3**
Housing/Cable entry	
Plastic single chamber/IP66/IP67/M20 x 1.5	**A**
Plastic single chamber/IP66/IP67/½" NPT	**B**
Aluminum IP66/IP67/M20 x 1.5	**C**
Aluminum IP66/IP67/½" NPT	**D**
Stainless steel single chamber (precision casting)/IP66/IP67/M20 x 1.5	**E**
Stainless steel single chamber (precision casting)/IP66/IP67/½" NPT	**F**
Stainless steel single chamber (electropolished)/IP66/IP67/M20 x 1.5	**G**
Stainless steel single chamber (electropolished)/IP66/IP67/½" NPT	**H**
Rigid Extension 316L	
200 ... 500 mm	**A 0**
501 ... 1 000 mm	**A 1**
1 001 ... 1 500 mm	**A 2**
1 501 ... 2 000 mm	**A 3**
2 001 ... 2 500 mm	**A 4**
2 501 ... 3 000 mm	**A 5**
Rigid Extension Alloy C22	
200 ... 500 mm	**B 0**
501 ... 1 000 mm	**B 1**
1 001 ... 1 500 mm	**B 2**
1 501 ... 2 000 mm	**B 3**
2 001 ... 2 500 mm	**B 4**
2 501 ... 3 000 mm	**B 5**
75 mm compact version	**C 1**

SITRANS LVL200

Selection and Ordering data	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Enter the total insertion length in plain text description.	**Y01**
Cleaning including Certificate (oil, grease, and silicone free).	**W01**
Identification label (measurement loop) stainless steel.	**Y17**
Identification Label (measurement loop) foil.	**Y18**
Spare Parts and Accessories	
SITRANS SCSC single channel signal conditioner and remote test	**7ML5760**
SITRANS TCSC two channel signal conditioner and remote test	**7ML5761**
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

1) Not available with Process Connection options A0 and A2.
2) Available only with Rigid extension option C1.
3) Available only with 316L Process Connection and Rigid extension options.
4) Available only with Alloy C22 Rigid extension options.

Selection and Ordering data	Article No.
SITRANS SCSC, single channel, signal conditioner for SITRANS LVL200 ↗ Single channel signal conditioning instrument for level detection with relay output for one LVL vibrating switch with electronics version two-wire 8/16 mA. Provides remote test of LVL200. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	**7ML5760-** ■■**A**■**1 -**■■■■
Approvals	
For Ex-free area	**1 A**
ATEX II (1) G/D [Ex ia Ga/Da] IIC/IIIC, I (M1) [Ex ia Ma] I	**1 D**
ATEX II (1) G/D (Ex ia Ga/Da) IIC/IIIC, I (M1) (Ex ia Ma) I + WHG	**1 E**
IEC [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	**1 H**
IEC (Ex ia Ga) IIC, (Ex ia Da) IIIC, (Ex ia Ma) I + WHG	**1 J**
SIL qualification	
Without	**1**
With	**2**
Version	
Single-channel (8/16 mA) for level detection	**1**
Single channel (8/16 mA), level detection with fail safe relay	**2**
Housing/cable entry	
Plastic/IP20	**A**
Terminal block connection	
Detachable 2.5 mm²/ Ex sensor: 2 x blue; output and operating voltage: 2 x black	**A**
Detachable 2.5 mm²/ sensor: 2 x black; output and operating voltage: 2 x black	**B**
Language	
English	**0**
German	**1**

Selection and Ordering data	Order code
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

Selection and Ordering data	Article No.
SITRANS TCSC, two channel, signal conditioner for SITRANS LVL200 ↗ Two channel signal conditioning instrument for level detection with relay output for two LVL vibrating switches with electronics version two-wire 8/16 mA. Provides remote test of LVL200. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	**7ML5761-** ■■**A**■**1 -**■■■■
Approvals	
For Ex-free area	**1 A**
ATEX II (1) G/D [Ex ia Ga/Da] IIC/IIIC, I (M1) [Ex ia Ma] I	**1 D**
ATEX II (1) G/D (Ex ia Ga/Da) IIC/IIIC, I (M1) (Ex ia Ma) I + WHG	**1 E**
IEC [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I	**1 H**
IEC (Ex ia Ga) IIC, (Ex ia Da) IIIC, (Ex ia Ma) I + WHG	**1 J**
SIL qualification	
Without	**1**
With	**2**
Version	
Double-channel (8/16 mA) for level detection	**1**
Housing/cable entry	
Plastic/IP20	**A**
Terminal block connection	
Detachable 2.5 mm²/ Ex sensor: 2 x blue; output and operating voltage: 2 x black	**A**
Detachable 2.5 mm²/ sensor: 2 x black; output and operating voltage: 2 x black	**B**
Language	
English	**0**
German	**1**

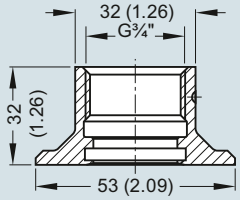
Selection and Ordering data	Order code
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

1) Available only with terminal block connection option B
2) Available only with terminal block connection option A

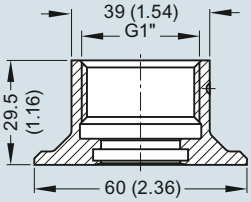
Options

LVL200 threaded welded socket

G¾" A/316L

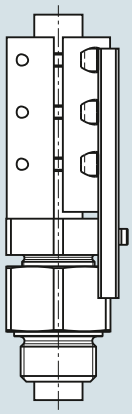


G1" A/316L

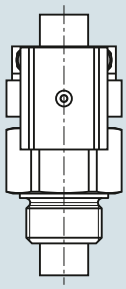


Lock fitting

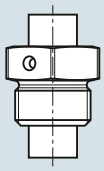
LVL200 extended 64 bar



LVL200 extended 16 bar

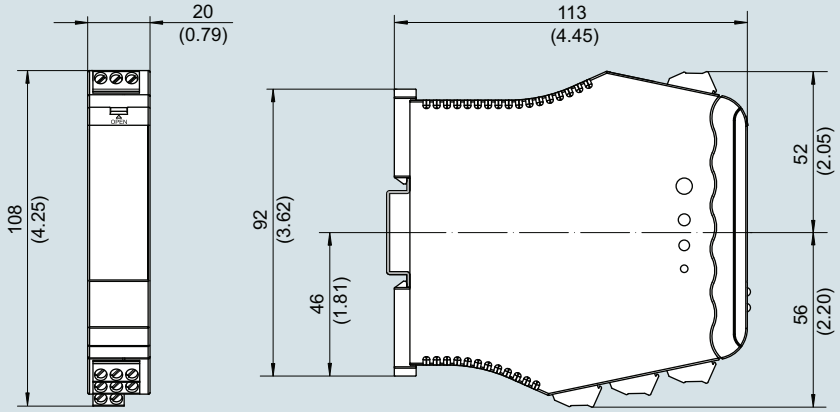


LVL200 extended unpressurized

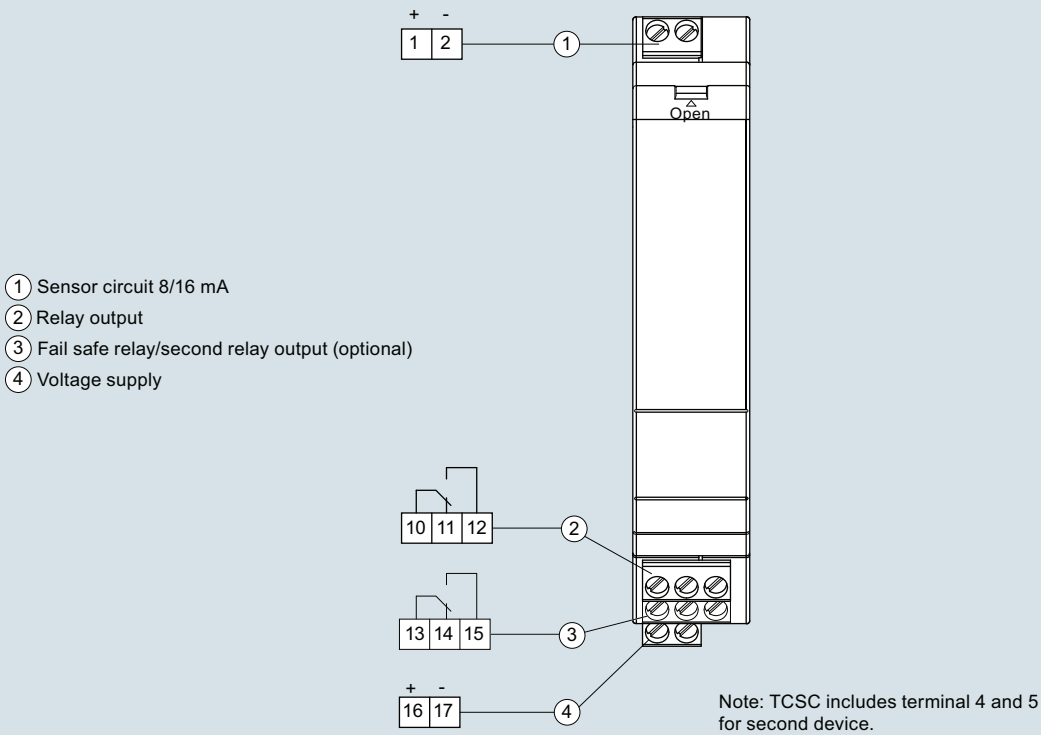


SITRANS LVL200 welded socket and lock fitting, dimensions in mm (inch)

SITRANS SCSC and TCSC LVL test conditioner



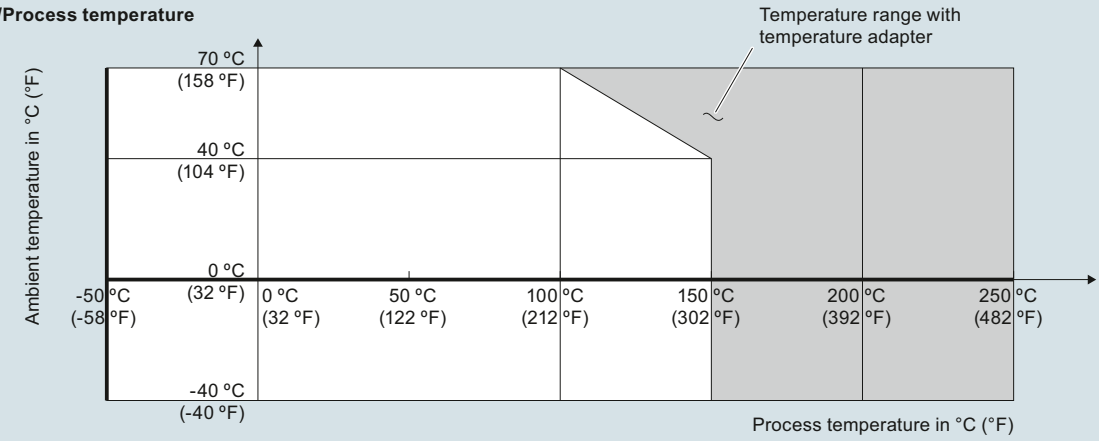
SITRANS SCSC and SITRANS TCSC LVL Test Conditioners, dimensions in mm (inch)



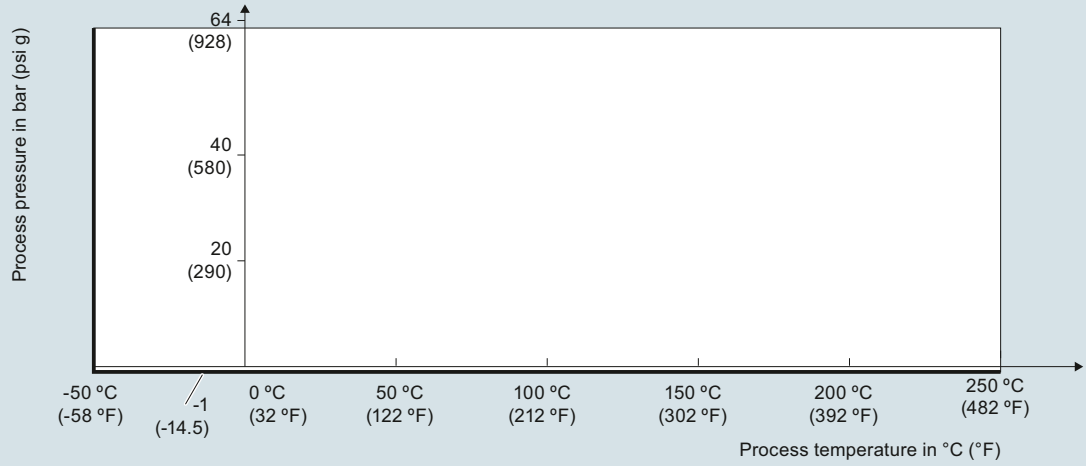
SITRANS SCSC and SITRANS TCSC LVL Test Conditioner connections

Characteristic curves

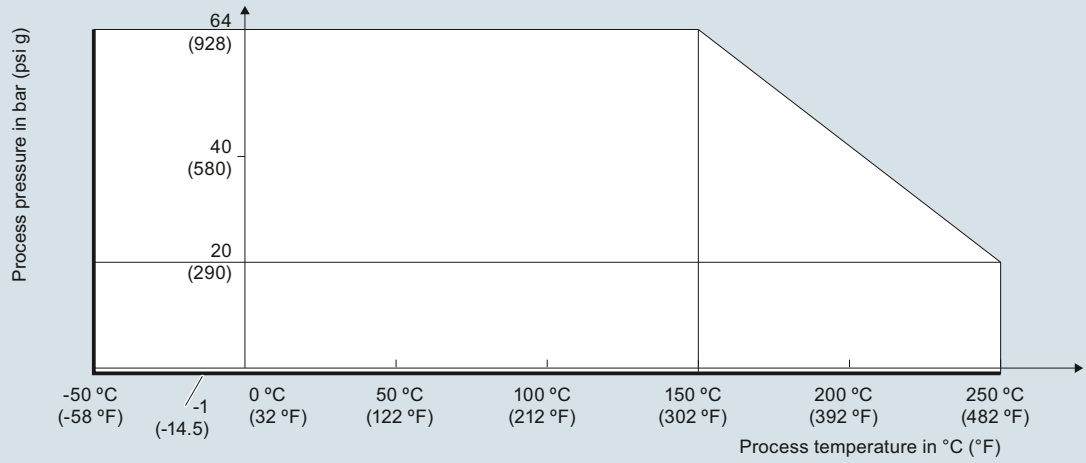
Ambient/Process temperature



Process pressure with switch position 0.7 g/cm³ (mode switch)



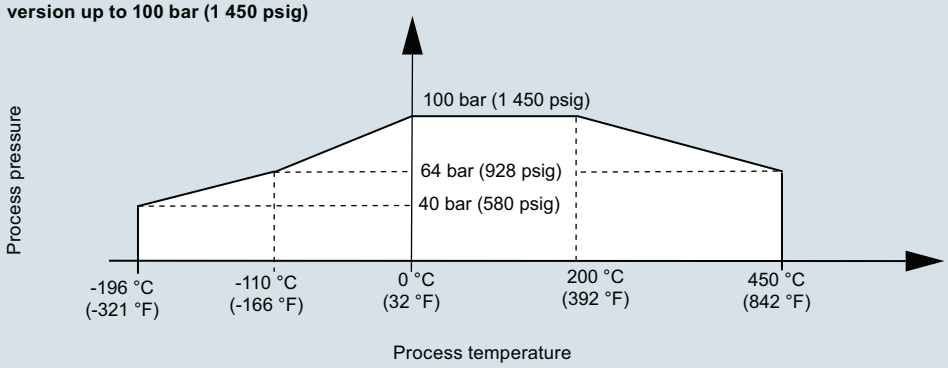
Process pressure with switch position 0.5 g/cm³ (mode switch)



SITRANS LVL200 process pressure/process temperature/ambient temperature derating curves

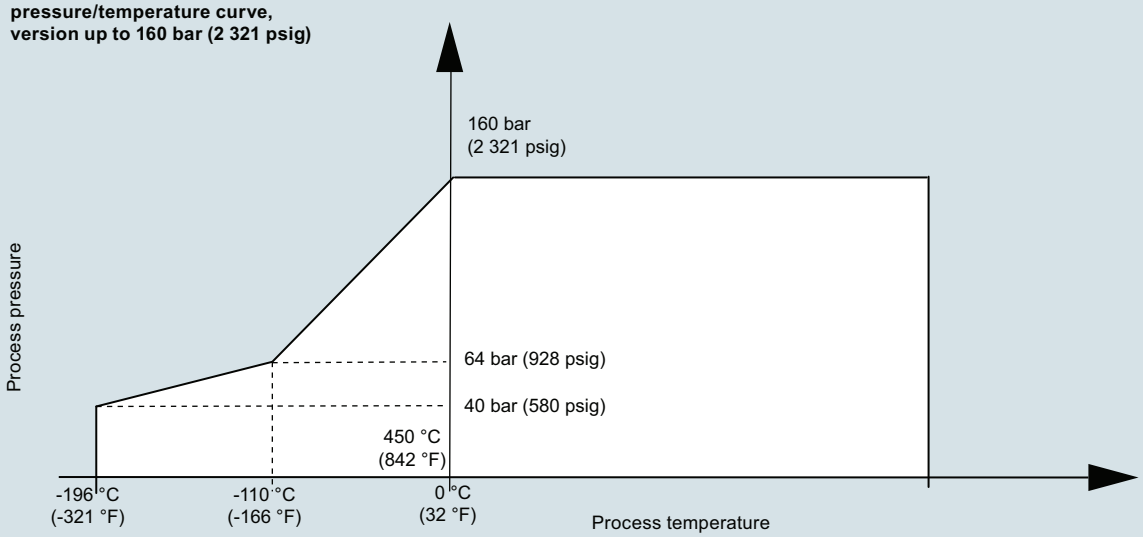
SITRANS LVL200

SITRANS LVL high temperature process temperature/process pressure, version up to 100 bar (1 450 psig)



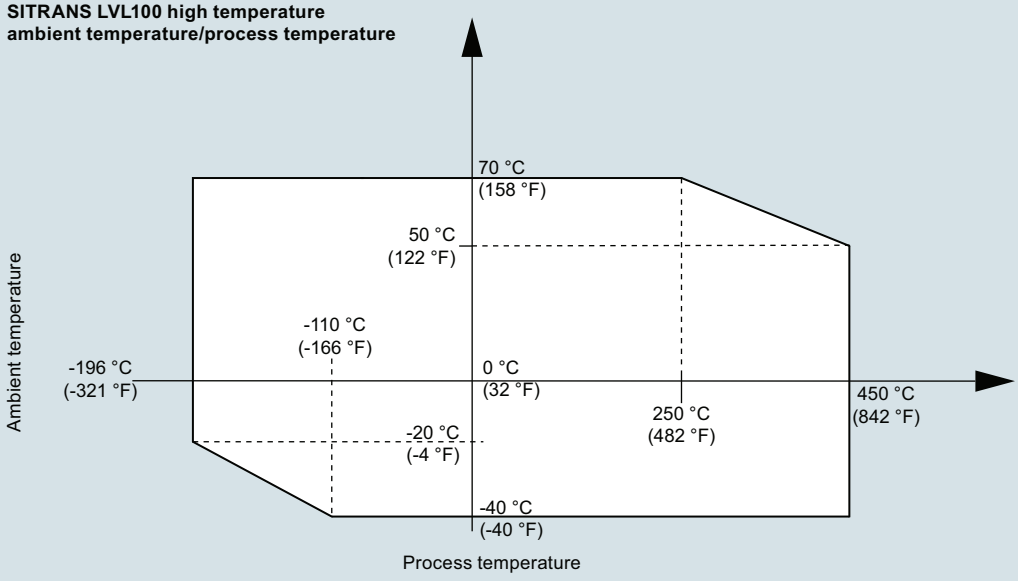
SITRANS LVL200 high temperature, process temperature/process pressure version up to 100 bar (1 450 psig)

SITRANS LVL200 high temperature pressure/temperature curve, version up to 160 bar (2 321 psig)



SITRANS LVL200 high temperature, pressure/temperature, version up to 160 bar (2 321 psig)

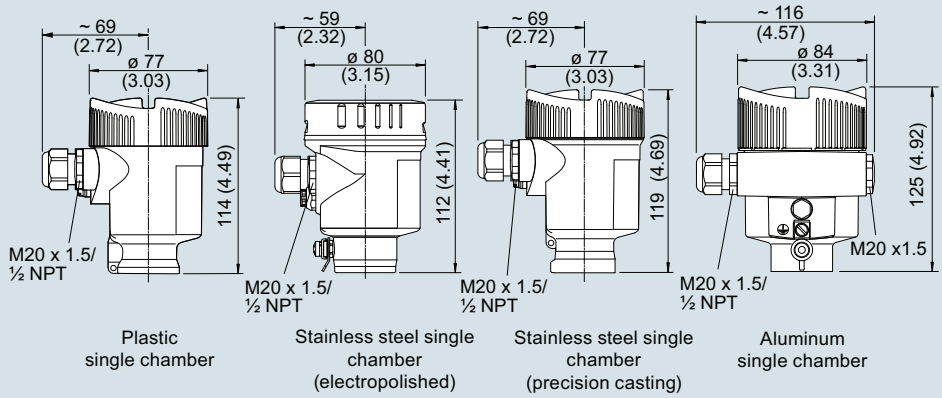
SITRANS LVL100 high temperature ambient temperature/process temperature



SITRANS LVL200 high temperature ambient temperature/process temperature, version up to 100 bar (1 450 psig)

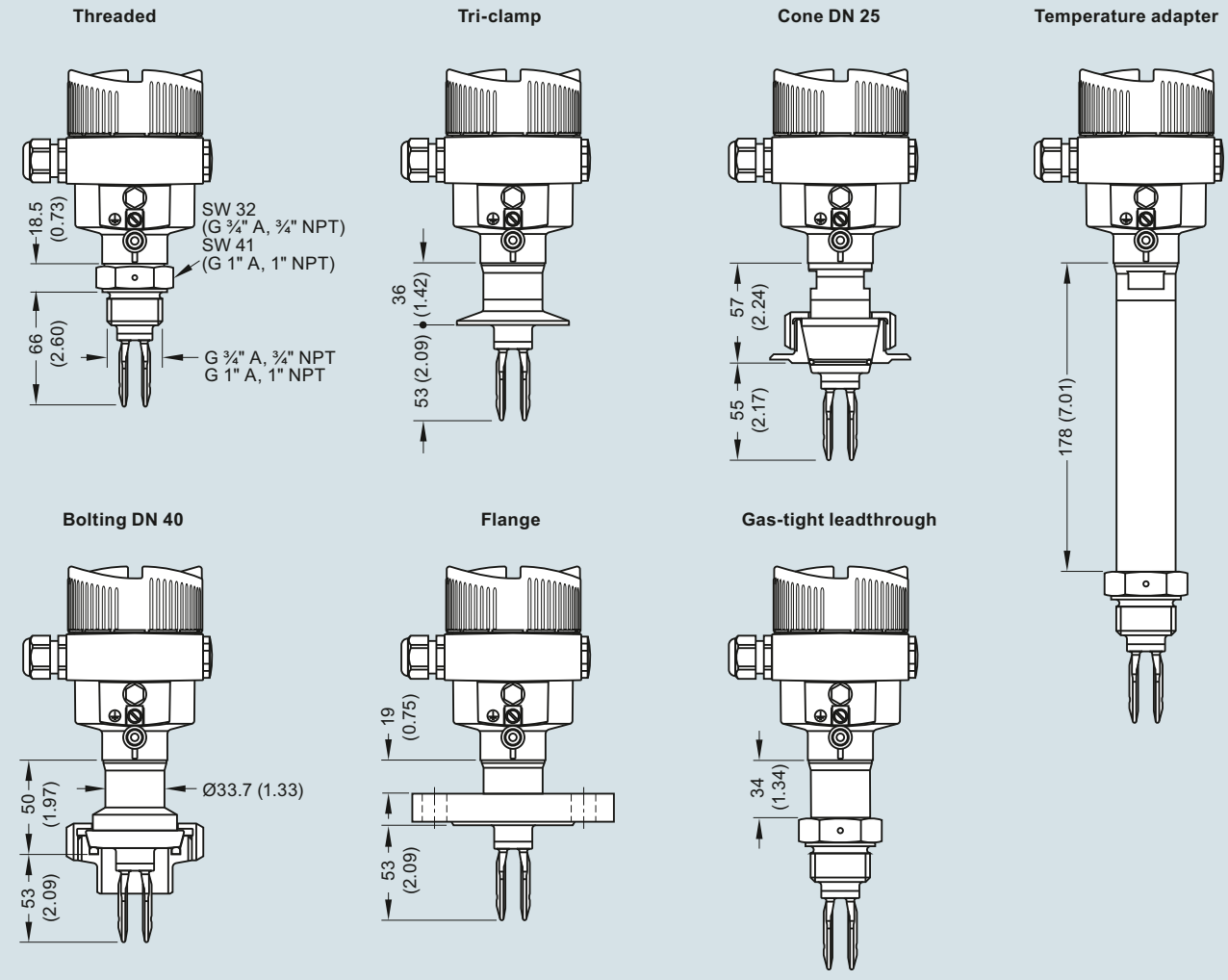
Dimensional drawings

SITRANS LVL200, housing



SITRANS LVL200 housing, dimensions in mm (inch)

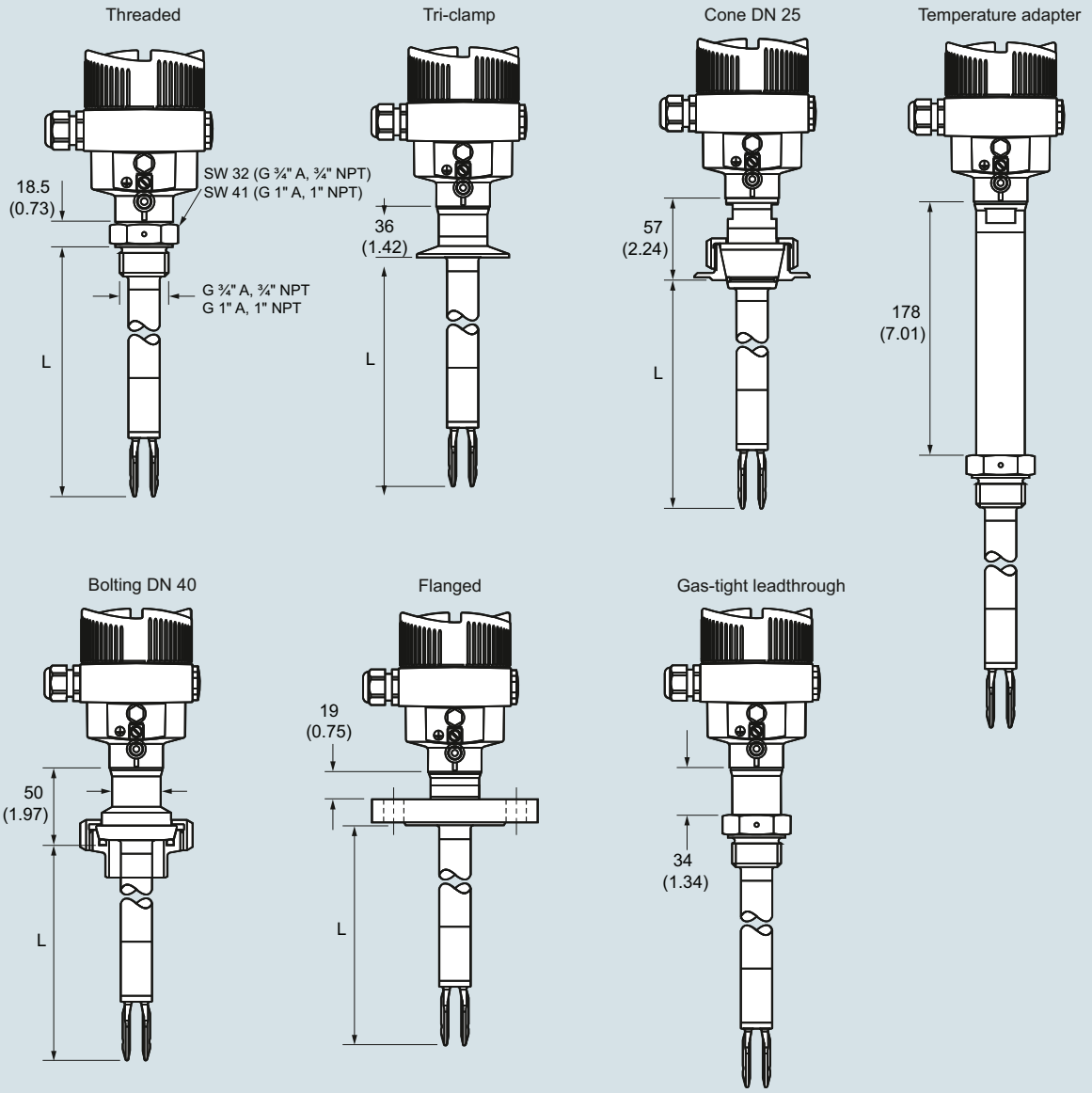
SITRANS LVL200 standard



SITRANS LVL200 (standard), dimensions in mm (inch)

SITRANS LVL200

SITRANS LVL200 extended

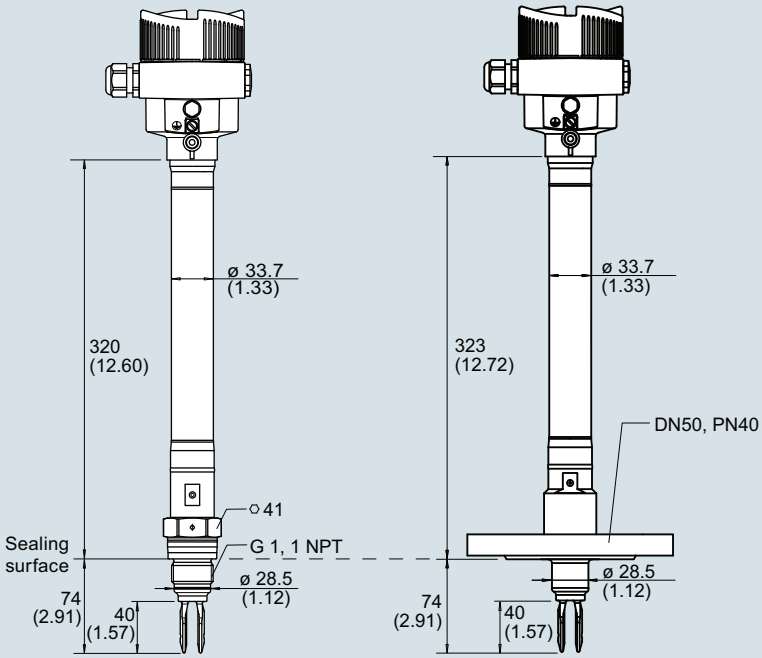


Sensor length (L)

316L, Alloy C22 (2.4602)	80 ... 6 000 mm (3.15 ... 236.2 inch)
Enamelled	80 ... 1 500 mm (3.15 ... 59.06 inch)
316L, ECTFE coated	80 ... 3 000 mm (3.15 ... 118.1 inch)
316L, PFA coated	80 ... 4 000 mm (3.15 ... 157.5 inch)

SITRANS LVL200 (extended), dimensions in mm (inch)

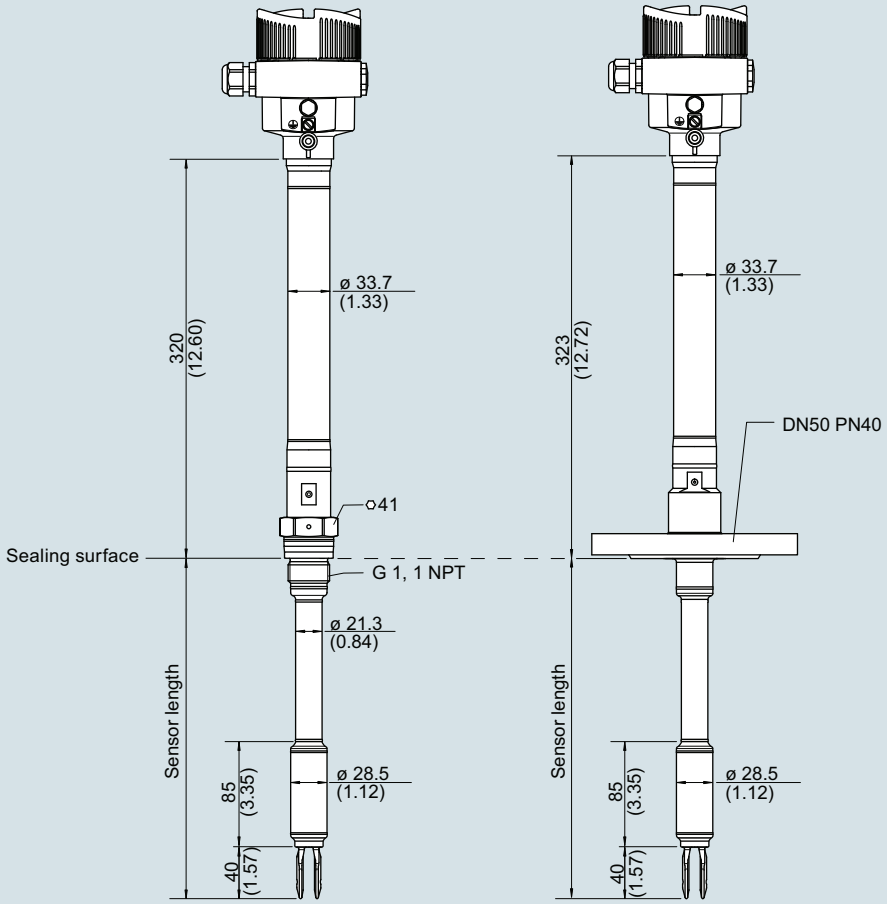
SITRANS LVL200 high temperature, compact version



SITRANS LVL200 high temperature (compact version), dimensions in mm (inch

SITRANS LVL200

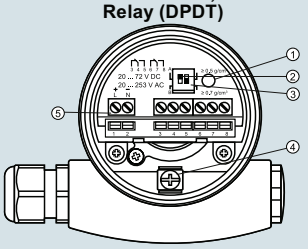
SITRANS LVL200 high temperature, tube version



SITRANS LVL200 high temperature (tube version), dimensions in mm (inch)

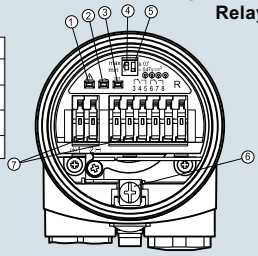
Circuit diagrams

SITRANS LVL200S, LVL200E Relay (DPDT)

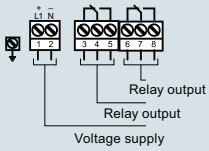


①	Control lamp
②	DIL switch for characteristics reversal
③	DIL switch for sensitivity adjustment
④	Ground terminal
⑤	Connection terminals

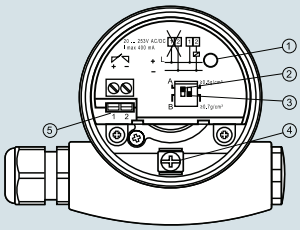
SITRANS LVL200H Relay (DPDT)



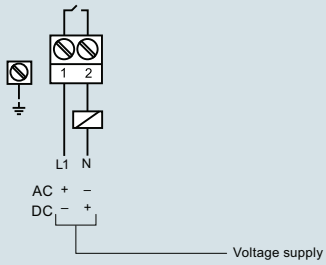
①	Control lamp - fault indication (red)
②	Control lamp - Switching status (yellow)
③	Control lamp - Operating status (green)
④	Mode switch for selecting the switching behaviour (min./max.)
⑤	DIL switch for sensitivity adjustment
⑥	Ground terminal
⑦	Connection terminals



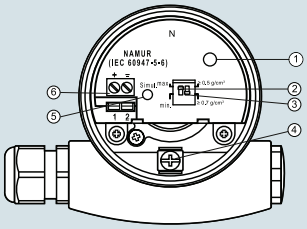
Contactless



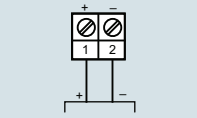
①	Control lamp
②	DIL switch for mode adjustment
③	DIL switch for switching point adaptation
④	Ground terminal
⑤	Connection terminals



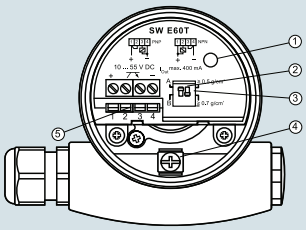
NAMUR



①	Control lamp
②	DIL switch for characteristics reversal
③	DIL switch for sensitivity adjustment
④	Ground terminal
⑤	Simulation key
⑥	Connection terminals

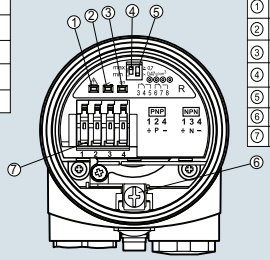


SITRANS LVL200S, LVL200E Transistor (NPN/PNP)

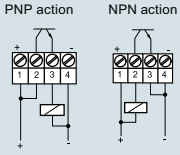


①	Control lamp
②	DIL switch for mode adjustment
③	DIL switch for switching point
④	Ground terminal
⑤	Connection terminals

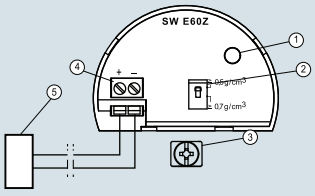
SITRANS LVL200H, Transistor (NPN/PNP)



①	Control lamp - fault indication (red)
②	Control lamp - Switching status (yellow)
③	Control lamp - Operating status (green)
④	Mode switch for selecting the switching behaviour (min./max.)
⑤	DIL switch for sensitivity adjustment
⑥	Ground terminal
⑦	Connection terminals

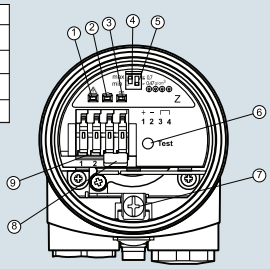


SITRANS LVL200S, LVL200E 8/16 mA

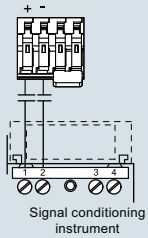


①	Control lamp
②	DIL switch for sensitivity adjustment
③	Ground terminal
④	Connection terminals
⑤	Processing system or PLC

SITRANS LVL200H 8/16 mA



①	Control lamp - fault indication (red)
②	Control lamp - switching status (yellow)
③	Control lamp - operating status (green)
④	Mode switch for selecting the switching behavior (min./max.)
⑤	DIL switch for sensitivity behavior (min./max.)
⑥	Test key
⑦	Ground terminal
⑧	Connector block
⑨	Connection terminals



SITRANS LVL200 connections

SIEMENS

EU Declaration of Conformity
EU-Konformitätserklärung
EU-Déclaration de Conformité

No. A5E41945003A/003

Manufacturer: *Hersteller:* *Fabricant:*	Siemens Canada Limited Siemens Milltronics Process Instruments Process Industries and Drives Division
Address: *Anschrift:* *Adresse:*	1954 Technology Drive, P.O. Box 4225; Peterborough, Ontario; K9J 7B1, Canada
Product description: *Produktbezeichnung:* *Identificateur:*	Electromechanical Switch for Point Level Measurement SITRANS LVL200 Standard SITRANS LVL200 Rigid Extension SITRANS LVL200 High Temperature 7ML57ab-xcxxx-xxxx ab = 46, 47, 48 c = B, C, D, E, F, G, H, L, R, W

The product described above in the form as delivered is in conformity with the provisions of the following European Directives:
Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:
Le produit mentionné ci-dessus, tel qu'il est livré, est conforme aux dispositions des Directives Européennes suivantes :

2014/30/EU EMC	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility *Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit* *Directive du parlement Européen et du conseil relative à l'harmonisation des législations des États membres concernant la compatibilité électromagnétique*
2014/35/EU LVD	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits *Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die Bereitstellung elektrischer Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen auf dem Markt* *Directive du parlement Européen et du conseil relative à l'harmonisation des législations des États membres concernant la mise à disposition sur le marché du matériel électrique destiné à être employé dans certaines limites de tension*
2014/34/EU ATEX	Directive of the European Parliament and the Council on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres *Richtlinie des Europäischen Parlaments und des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen* *Directive du parlement Européen et du conseil relative à l'harmonisation des législations des États membres concernant les appareils et les systèmes de protection destinés à être utilisés en atmosphères explosibles*

Restricted Annex A is integral part of this declaration..
Anhang A ist integraler Bestandteil dieser Erklärung.
L'annexe A fait partie intégrante de la présente déclaration

This declaration certifies the conformity to the specified directives but contains no assurance of properties.
The safety documentation accompanying the product shall be considered in detail.
Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Beschaffenheits- oder Haltbarkeitsgarantie nach §443 BGB.
Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
La présente déclaration atteste la conformité aux Directives citées. Elle n'est pas assimilable à un descriptif justifiant certaines propriétés.
La documentation relative à la sécurité accompagnant le produit doit être examinée en détail.

SIEMENS

EU Declaration of Conformity
EU-Konformitätserklärung
EU-Déclaration de Conformité

No. A5E41945003A/003

2011/65/EU RoHS	Directive of the European Parliament and the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment. *Richtlinie des Europäischen Parlaments und des Rates zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräte.* *Directive du parlement Européen et du relative à la limitation de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques*

Peterborough, 2018.01.31
Siemens Canada Limited
Siemens Milltronics Process Instruments

Jean Rene Larocque,
Research & Development / Entwicklung

signature / *Unterschrift*

Valerie McQueen,
Quality / Qualität

signature / *Unterschrift*

Restricted Anhang A ist integraler Bestandteil dieser Erklärung
Annex A is integral part of this declaration
L'annexe A fait partie intégrante de la présente déclaration

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Zusicherung von Eigenschaften.
Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
This declaration certifies the conformity to the specified directives but contains no assurance of properties.
The safety documentation accompanying the product shall be considered in detail.
La documentation relative à la sécurité accompagnant le produit doit être examinée en détail.

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Annex A to the EU Declaration of Conformity
Anhang A zur EU-Konformitätserklärung
Annexe A de la Déclaration de conformité

No. A5E41945003A/003

Product description: Electromechanical Switch for Point Level Measurement
Produktbezeichnung: SITRANS LVL200 Standard
Identificateur: SITRANS LVL200 Rigid Extension
SITRANS LVL200 High Temperature
7ML57ab-xcxxx-xxxx ab = 46, 47, 48 c = B, C, D, E, F, G, H, L, R, W

Conformity to the Directives indicated on page 1 is assured through the application of the following standards (depending on versions):
Die Konformität mit den auf Blatt 1 angeführten Richtlinien wird nachgewiesen durch die Einhaltung folgender Normen (variantenabhängig):
La conformité aux Directives indiquées sur la page 1 est garantie par l'application des normes suivantes (selon les versions) :

Directive *Richtlinie* *Directive*	Standard / Reference number *Norm / Referenznummer* *Norme / référence*	Edition *Ausgabedatum* *Edition*	ab =	c =
2014/30/EU	EN 61326-1 *	2013	46, 47, 48	B, C, D, E, F, G, H, L, R, W
2014/35/EU	EN 61010-1	2010	46, 47, 48	B, C, D, E, F, G, H, L, R, W
2014/34/EU	EN 60079-0 + A11:2013 Note 1	2012	46, 47	C, D, E, F, G, L, W
	EN 60079-1 Note 1	2014	46, 47	D, F
	EN 60079-11 Note 1	2012	46, 47	C, E, G, W
	EN 60079-15 Note 3	2010	46, 47	L
	EN 60079-26 Note 1	2015	46, 47	C, D, E, F, G, W
	EN 60079-31 Note 1	2014	46, 47	G

Note 1: The manufacturer declares that the products comply with the requirements of the latest editions of the standards. The changes of the latest editions have been checked and do not affect the products.
Note 2: Refer to footnotes on LVL200 catalog pages for order option availability/constraints.
Note 3: Applicable protection code: ATEX II 3G Ex nA II T5..T1 X

* all environments included / *beinhaltet alle Umgebungen/dans tout type d'environnement*

EC-type examination certificate *EG-Baumusterprüfbescheinigung* *Certificat évaluation de type*	Marking *Kennzeichnung* *Marquage*	ab =	c =
PTB 17ATEX2002X	II 1G or II 1/2G or II 2G	46, 47	C, E, G, W
BVS 08ATEXE015	II 1/2D or II 2D	46, 47	G
KEMA 09ATEX0014X	II 1/2G	46, 47	D, F

Inspection / Surveillance:
Kontrolle / Überwachung:
Controle / Supervision:

Directive *Richtlinie* *Directive*		Notified Body Product Quality Assurance *Benannte Stelle Qualitätssicherung Produktion* *Organisme notifie*		No.:
2014/34/EU	ATEX	CSA Group	Unit 6, Hawarden Industrial Park Hawarden, CH5 3US, UK	0518

Vibrating Switches

SITRANS LVL200H

Relay (2 x SPDT)

With SIL qualification

Safety Manual • 04/2018

SITRANS

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Contents

57720-EN-180419

Editing status: 2018-04-19

1 Document language

DE	Das vorliegende *Safety Manual* für Funktionale Sicherheit ist verfügbar in den Sprachen Deutsch, Englisch, Französisch und Russisch.
EN	The current *Safety Manual* for Functional Safety is available in German, English, French and Russian language.
FR	Le présent *Safety Manual* de sécurité fonctionnelle est disponible dans les langues suivantes: allemand, anglais, français et russe.
RU	Данное руководство по функциональной безопасности *Safety Manual* имеется на немецком, английском, французском и русском языках.

57720-EN-180419

2 Scope

2.1 Instrument version

This safety manual applies to point level sensors

SITRANS LVL200H - Relay (2 x SPDT) with SIL qualification

Electronics module:

- SG60HT-S

Valid versions:

- from HW Ver 1.0.0
- from SW Ver 1.1.0

2.2 Area of application

The instrument can be used for level detection of liquids in a safety-related system according to IEC 61508 in the modes *low demand mode* or *high demand mode*.

Due to the systematic capability SC3 this is possible up to:

- SIL2 in a single-channel architecture
- SIL3 in a multiple channel architecture

The following interface can be used to output the measured value:

- Relay (2 x SPDT)

SIL Both NO contact must be connected in series![1)]

2.3 SIL conformity

The SIL conformity was independently judged and certified by the *TÜV Rheinland* according to IEC 61508:2010 (Ed.2).[2)]

SIL The certificate is valid for the entire service life of all instruments that were sold before the certificate expired!

[1)] NO = Normal Open

[2)] Verification documents see appendix

3 Planning

3.1 Safety function

Safety function

To monitor a limit level, the sensor detects via the conditions "*Vibrating element uncovered*" or "*Vibrating element covered*" a limiting value defined by the mounting location.

The detected status is signalled on the output with "*Relay contact open*" or "*Relay contact closed*".

3.2 Safe state

Safe state

The safe state of the output signal is independent of the mode adjusted on the sensor.

SIL For the safety function, only the NO contact may be used (idle current principle)!

Both NO contact must be connected in series!

Mode	Overflow protection Mode max.	Dry run protection Mode min.
Vibrating element	covered	uncovered
Relay	NO contact open (currentless)	NO contact open (currentless)

Fault signals in case of malfunction

Relay outputs:

- NO contacts open

3.3 Prerequisites for operation

Instructions and restrictions

- The measuring system should be used appropriately taking pressure, temperature, density and chemical properties of the medium into account. The application-specific limits must be observed.
- The specifications according to the operating instructions manual, particularly the current load on the output circuits, must be kept within the specified limits
- To avoid a fusing of the relay contacts, these must be protected by an external fuse that triggers at 60 % of the max. contact current load.
- When used as dry run protection, buildup on the vibrating system should be avoided (probably shorter proof test intervals will be necessary)
- The instructions in chapter "*Safety-related characteristics*", paragraph "*Supplementary information*" must be noted
- All parts of the measuring chain must correspond to the planned "*Safety Integrity Level (SIL)*"

4 Safety-related characteristics

4.1 Characteristics acc. to IEC 61508

Parameter	Value
Safety Integrity Level	SIL2 in single-channel architecture SIL3 in multiple channel architecture[3)]
Hardware fault tolerance	HFT = 0
Instrument type	Type B
Mode	Low demand mode, High demand mode
SFF	> 90 %
MTTR	8 h
MTBF = MTTF + MTTR[4)]	1.01 x 10^6 h (116 years)
Diagnostic test interval[5)]	< 120 s
Fault reaction time[6)]	< 2 s

Failure rates

λ_S	λ_{DD}	λ_{DU}	λ_H	λ_L	λ_{AD}
329 FIT	186 FIT	36 FIT	0 FIT	0 FIT	11 FIT

PFD_{AVG}	0.030 x 10^{-2}	(T1 = 1 year)
PFD_{AVG}	0.044 x 10^{-2}	(T1 = 2 years)
PFD_{AVG}	0.087 x 10^{-2}	(T1 = 5 years)
PFH	0.036 x 10^{-6} 1/h	

Proof Test Coverag (PTC)

Test type[7)]	Remaining failure rate of dangerous undetected failures	PTC
Test 1	11 FIT	68 %
Test 2	2 FIT	96 %

4.2 Characteristics acc. to ISO 13849-1

Derived from the safety-related characteristics, the following figures result according to ISO 13849-1 machine safety):[8)]

Parameter	Value
MTTFd	489 years
DC	85 %

[3)] Homogeneous redundancy possible.
[4)] Including errors outside the safety function.
[5)] Time during which all internal diagnoses are carried out at least once.
[6)] Time between the occurrence of the event and the output of a fault signal.
[7)] See section "Proof test".
[8)] ISO 13849-1 was not part of the certification of the instrument.

Parameter	Value
Performance Level	3.60 x 10^{-8} 1/h

4.3 Supplementary information

Determination of the failure rates

The failure rates of the instruments were determined by an FMEDA according to IEC 61508. The calculations are based on failure rates of the components according to **SN 29500**:

All figures refer to an average ambient temperature of 40 °C (104 °F) during the operating time. For higher temperatures, the values should be corrected:

- Continuous application temperature > 50 °C (122 °F) by factor 1.3
- Continuous application temperature > 60 °C (140 °F) by factor 2.5

Similar factors apply if frequent temperature fluctations are expected.

Assumptions of the FMEDA

- The failure rates are constant. Take note of the useful service life of the components according to IEC 61508-2.
- Multiple failures are not taken into account
- Wear on mechanical parts is not taken into account
- Failure rates of external power supplies are not taken into account
- The environmental conditions correspond to an average industrial environment
- To avoid a fusing of the relay contacts, these must be protected by an external fuse

Calculation of PFD_{AVG}

The values for PFD_{AVG} specified above were calculated as follows for a 1oo1 architecture:

$$PFD_{AVG} = \frac{PTC \times \lambda_{DU} \times T1}{2} + \lambda_{DD} \times MTTR + \frac{(1 - PTC) \times \lambda_{DU} \times LT}{2}$$

Parameters used:

- T1 = Proof Test Interval
- PTC = 90 %
- LT = 10 years
- MTTR = 8 h

Configuration of the processing unit

A connected control and processing unit must have the following properties:

- The failure signals of the measuring system are judged according to the idle current principle
- "*fail low*" and "*fail high*" signals are interpreted as a failure, whereupon the safe state must be taken on

If this is not the case, the respective percentages of the failure rates must be assigned to the dangerous failures and the values stated in chapter *Safety-related characteristics*“ redetermined!

Multiple channel architecture

Due to the systematic capability SC3, this instrument can also be used in multiple channel systems up to SIL3, also with a homogeneously redundant configuration.

The safety-related characteristics must be calculated especially for the selected structure of the measuring chain using the stated failure rates. In doing this, a suitable Common Cause Factor (CCF) must be considered (see IEC 61508-6, appendix D).

5 Setup

5.1 General information

Mounting and installation

Take note of the mounting and installation instructions in the operating instructions manual.

Setup must be carried out under process conditions.

5.2 Adjustment instructions

Adjustment elements

The adjustment elements must be set according to the specified safety function:

- Slide switch for changeover of the mode (min./max.)
- Slide switch for changeover of the sensitivity

The function of the adjustment elements is described in the operating instructions manual.

Please note!

SIL During adjustment process, the safety function must be considered as unreliable!

If necessary, you must take other measures to maintain the safety function.

SIL With regard to the switch on/swich off delay it must be ensured that the sum of all switching delays from the transducer to the actuator is adapted to the process safety time!

SIL The instrument must be protected against inadvertent or unauthorized adjustment!

6 Diagnostics and servicing

6.1 Behaviour in case of failure

Internal diagnosis

The instrument is permanently monitored by an internal diagnostic system. If a malfunction is detected, the respective output signals change to the safe status (see section "*Safe status*").

This condition is maintained for at least 1 second. If an error is no longer detected, the safety function is performed correctly again.

The diagnosis interval is specified in chapter "*Safety-related characteristics*".

SIL If failures are detected, the entire measuring system must be shut down and the process held in a safe state by other measures.

The manufacturer must be informed of the occurrence of a dangerous undetected failure (incl. fault description).

6.2 Repair

Electronics exchange

The procedure is described in the operating instructions manual. Note the instructions for setup.

7 Proof test

7.1 General information

Objective

To identify possible dangerous, undetected failures, the safety function must be checked by a proof test at adequate intervals. It is the user's responsibility to choose the type of testing. The time intervals are determined by the selected PFD_{AVG} (see chapter "*Safety-related characteristics*").

For documentation of these tests, the test protocol in the appendix can be used.

If one of the tests proves negative, the entire measuring system must be switched out of service and the process held in a safe state by means of other measures.

In a multiple channel architecture this applies separately to each channel.

Preparation

- Determine safety function (mode, switching points)
- If necessary, remove the instruments from the safety chain and maintain the safety function by other means

Unsafe device status

Warning:
During the function test, the safety function must be treated as unreliable. Take into account that the function test influences downstream connected devices.

If necessary, you must take other measures to maintain the safety function.

After the function test, the status specified for the safety function must be restored.

7.2 Test 1: Without filling or dismounting the sensor

Conditions

- Instrument in installed condition
- Output signal corresponds to the level (covered or uncovered vibrating element)
- **The NO contacts of the two relays connected in series must be checked separately!**

Procedure

1. Carry out a restart (switch the instrument off and then on again)
2. Push the min./max. switch

Expected result

to 1: Output signal corresponds to the level

to 2: Output signal changes status

Proof Test Coverage

See *Safety-related characteristics*

7.3 Test 2: With filling or dismounting of the sensor

Conditions

- **Alternative 1:** the instrument remains mounted; the condition "*Vibrating element uncovered*"/"*Vibrating element covered*" can be changed by filling or emptying to the switching point.
- **Alternative 2:** the instrument is dismounted; the condition "*Vibrating element uncovered*"/"*Vibrating element covered*" can be changed by dipping the instrument into the original medium
- Output signal corresponds to the level (covered or uncovered vibrating element)
- **The NO contacts of the two relays connected in series must be checked separately!**

Procedure

1. Push the min./max. switch
2. Filling or emptying up to the switching point or immersion into the original medium

Expected result

to 1: Output signal changes status

to 2: Output signal corresponds to the modified level

Proof Test Coverage

See *Safety-related characteristics*

8 Appendix A: Test report

Identification	
Company/Tester	
Plant/Instrument TAG	
Meas. loop TAG	
Instrument type/Order code	
Instrument serial number	
Date, setup	
Date, last function test	

Test reason		**Test scope**	
(…)	Setup	(…)	without filling or dismounting the sensor
(…)	Proof test	(…)	with filling or dismounting the sensor

Mode		**Sensitivity**	
(…)	Overflow protection	(…)	≥ 0.7 g/cm^3 (0.025 lbs/in^3)
(…)	Dry run protection	(…)	≥ 0.5 g/cm^3 (0.018 lbs/in^3)

Test result

Test step	**Level**	**Expected measured value**	**Real value**	**Test result**

Confirmation	
Date:	Signature:

9 Appendix B: Term definitions

Abbreviations

SIL	Safety Integrity Level (SIL1, SIL2, SIL3, SIL4)
SC	Systematic Capability (SC1, SC2, SC3, SC4)
HFT	Hardware Fault Tolerance
SFF	Safe Failure Fraction
PFD_{AVG}	Average Probability of dangerous Failure on Demand
PFH	Average frequency of a dangerous failure per hour (Ed.2)
FMEDA	Failure Mode, Effects and Diagnostics Analysis
FIT	Failure In Time (1 FIT = 1 failure/10^9 h)
λ_{SD}	Rate for safe detected failure
λ_{SU}	Rate for safe undetected failure
λ_S	$\lambda_S = \lambda_{SD} + \lambda_{SU}$
λ_{DD}	Rate for dangerous detected failure
λ_{DU}	Rate for dangerous undetected failure
λ_H	Rate for failure, who causes a high output current (> 21 mA)
λ_L	Rate for failure, who causes a low output current (≤ 3.6 mA)
λ_{AD}	Rate for diagnostic failure (detected)
λ_{AU}	Rate for diagnostic failure (undetected)
DC	Diagnostic Coverage
PTC	Proof Test Coverage (Diagnostic coverage for manual proof tests)
T1	Proof Test Interval
LT	Useful Life Time
MTBF	Mean Time Between Failure = MTTF + MTTR
MTTF	Mean Time To Failure
MTTR	IEC 61508, Ed1: Mean Time To Repair IEC 61508, Ed2: Mean Time To Restoration
$MTTF_d$	Mean Time To dangerous Failure (ISO 13849-1)
PL	Performance Level (ISO 13849-1)

10 Supplement C: SIL conformity

SIL Manufacturer declaration, NE130: Form B.1

Manufacturer	
Siemens Canada Limited 1954 Technology Drive, Peterborough ON K9J 7B1, Canada	

General			
Device designation and permissible types	**SITRANS LVL200H** with SIL qualification		Item-No: LVL200H.******S/I/L***
Safety-related output signal	S: Relay (2 x SPDT)	I: Transistor (NPN/PNP)	L: Two-wire (8/16 mA)
Fault current	n/a	n/a	≥ 21 mA; ≤ 3,6 mA
Process variable / function	Covered or uncovered vibrating element		
	Relay contact open or closed	Transistor non-conductive or conductive	output current 8 mA or 16 mA
Safety function(s)	Monitoring a limit level for overflow protection (MAX) or dry run protection (MIN)		
Device type acc. to IEC 61508-2	☐ Type A	☒ Type B	
Operating mode	☒ Low Demand Mode	☒ High Demand or Continuous Mode	
Valid Hardware-Version	≥ 1.0.0		
Valid Software-Version	≥ 1.1.0		
Safety manual	Document ID: 57720	Document ID: 57721	Document ID: 57722
Type of evaluation (check only one box)	☒ Complete HW/SW evaluation parallel to development incl. FMEDA and change request acc. to IEC 61508-2, 3		
	☐ Evaluation of "Prior use" performance for HW/SW incl. FMEDA and change request acc. to IEC 61508-2, 3		
	☐ Evaluation of HW/SW field data to verify „prior use" acc. to IEC 61511		
	☐ Evaluation by FMEDA acc. to IEC61508-2 for devices without software		
Evaluation through (incl. certificate no.)	TÜV Rheinland Industry Service GmbH, Nr./No. 968/FSP 1601.00/18		
Test documents	Development documents	Test reports	Data sheets

Safety Integrity			
Systematic Capability (SC)		☐ SC2 for SIL2	☒ SC3 for SIL3
Hardware Safety Integrity	Single-channel use (HFT=0)	☒ SIL2 capable	☐ SIL3 capable
	Multi-channel use (HFT≥1)	☐ SIL2 capable	☒ SIL3 capable

FMEDA	**Version**		
	LVL200H R (S)	**LVL200H T (I)**	**LVL200H Z (L)**
Safety function(s)	MIN / MAX	MIN / MAX	MIN / MAX
λ_{DU} (FIT = Failure In Time / 10^9 h)	36 FIT	31 FIT	29 FIT
λ_{DD}	198 FIT	179 FIT	402 FIT
λ_{SU}	329 FIT	211 FIT	0 FIT
λ_{SD}	0 FIT	0 FIT	0 FIT
SFF (Safe Failure Fraction)	> 90 %	> 90 %	> 90 %
PTC (Proof Test Coverage)	Test 1: 68% / Test 2: 96%	Test 1: 64% / Test 2: 95%	Test 1: 61% / Test 2: 95%
FMEDA data source	SN 29500		

Declaration	
☒	Our internal company quality management system ensures information on safety-related systematic faults which become evident in the future.

Certificate

No.: 968/FSP 1601.00/18

Product tested	Sensors for level detection	**Certificate holder**	Siemens Canada Ltd. 1954 Technology Drive PO Box 4225 Peterborough, Ontario K9J 7B1 Canada
Type designation	SITRANS LVL200H S (Relay), SITRANS LVL200H I (Transistor), SITRANS LVL200H L (8/16 mA)		
Codes and standards	IEC 61508 Parts 1-7:2010 IEC 61010-1:2017	IEC 61326-3-2:2008	
Intended application	Sensors for level detection of liquids. The sensors of the SITRANS LVL200H x Series comply with the requirements of the stated standards and can be used in a safety-related system in a HFT=0 configuration up to SIL 2 acc. IEC 61508 and redundantly (HFT=1) up to SIL 3 (Systematic Capability SC 3) amongst others in the application area of IEC 61511-1.		
Specific requirements	The operating instructions and the safety manual shall be considered.		

Valid until 2023-03-09

The issue of this certificate is based upon an examination, whose results are documented in Report No. 968/FSP 1601.00/18 dated 2018-04-11.
This certificate is valid only for products which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Bereich Automation
Funktionale Sicherheit
Am Grauen Stein, 51105 Köln

Köln, 2018-04-11

Certification Body Safety & Security for Automation & Grid

Dr.-Ing. Thorsten Gantevoort

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Notes

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For more information

www.siemens.com/level

www.siemens.com/weighing

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