

Overview



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

Benefits

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

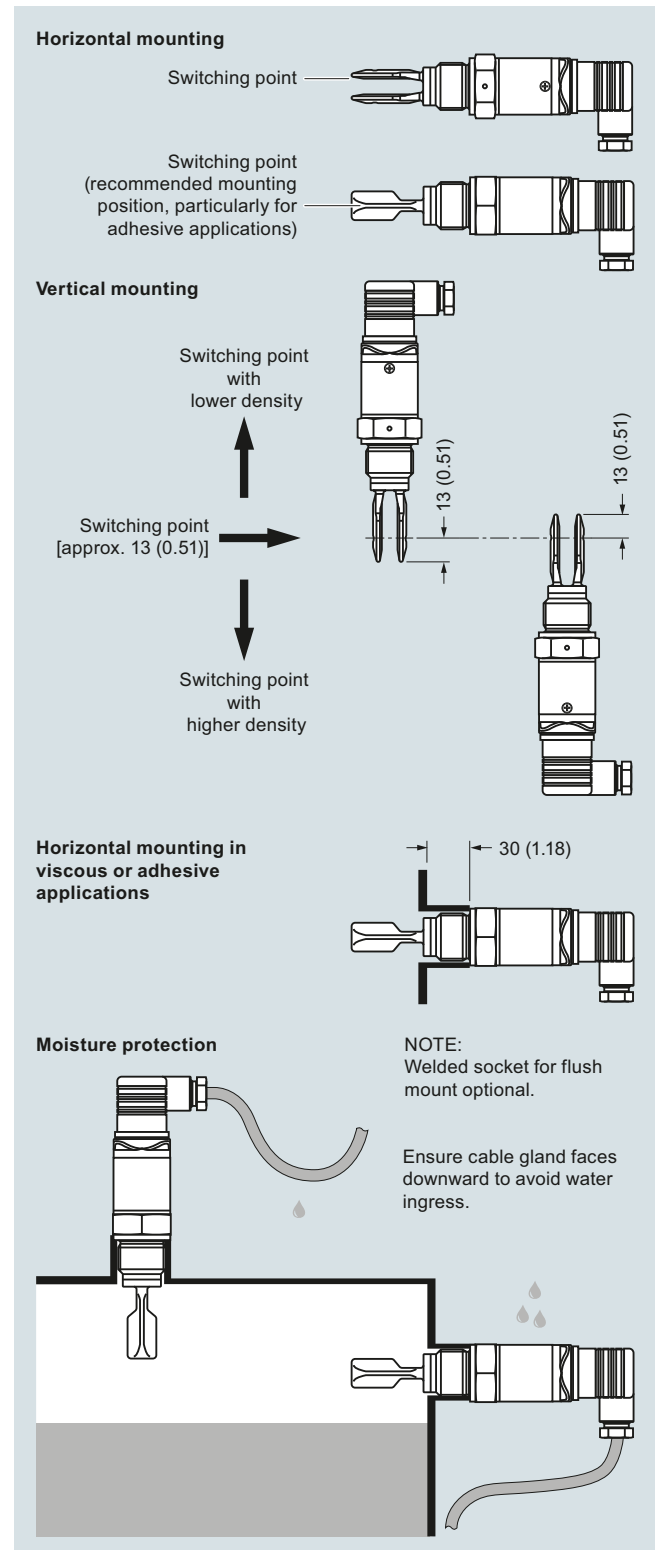
Application

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

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

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

Configuration



SITRANS LVL100 installation, dimensions in mm (inch)

Level Measurement

Point level measurement

Vibrating switches

SITRANS LVL100

Technical specifications

Mode of operation	
Measuring principle	Vibrating point level switch
Input	
Measured variable	High and low and demand
Output	
Output options	<ul style="list-style-type: none"> • Contactless electronic switch • Transistor output PNP
Measuring accuracy	
Hysteresis	Approx. 2 mm (0.08 inch) with vertical installation
Switching delay	Approx. 500 ms (on/off)
Frequency	Approx. 1 100 Hz
Rated operating conditions	
Installation conditions	Indoor/outdoor
• Location	
Ambient conditions	
• Ambient temperature	-40 ... +70 °C (-40 ... +158 °F)
• Installation category	III
• Pollution degree	2
Medium conditions	
• Temperature	
- Standard	-40 ... +100 °C (-40 ... +212 °F)
- High temperature option	-40 ... +150 °C (-40 ... +302 °F)
• Pressure (vessel)	-1 ... 64 bar g (-14.5 ... 928 psi g)
• Density	0.7 ... 2.5 g/cm ³ (0.025 ... 0.09 lb/in ³)
Design	
Material	
• Enclosure	316L and Plastic PEI
• Tuning fork	316L (1.4404 or 1.4435)
• Process connection (threaded)	316L (1.4404 or 1.4435)
• Process seal	Klingersil C-4400
Process connection	
• Pipe thread, cylindrical (ISO 228 T1)	G ½" A, G ¾" A, or G 1" A
• Pipe thread, tapered	½" NPT, ¾" NPT, or 1" NPT
• Hygienic fittings	Bolting DN 40 PN 40
	Tri-clamp 1", 1½", 2" PN 10
Degree of protection	IP65/Type 4/NEMA 4 (with DIN 43650 valve plug), IP66/67 or IP68 (with M12 connector)
Conduit entry	1 x M12 [IP66/IP67 or IP68 (0.2 bar)]
Weight (housing)	250 g (9 oz)
Power supply	
Supply voltage	20 ... 253 V AC, 50/60 Hz 20 ... 253 V DC
Power consumption	Max. 0.5 W
Certificates and approvals	
	<ul style="list-style-type: none"> • Overfill protection (WHG) • Shipping approvals

Level Measurement

Point level measurement

Vibrating switches

SITRANS LVL100

Selection and Ordering data	Article No.	Selection and Ordering data	Order code
SITRANS LVL100 Compact vibrating level switch for use in liquid and slurry applications such as overflow, high, low, and demand applications, as well as pump protection. Ideal for use in confined spaces. ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML5745- A 0	Further designs Please add "-Z" to Article No. and specify Order code(s). Cleaning including certificate (oil, grease and silicone free) Identification Label, foil laser marking Acceptance test Certificate 2.2 for material EN 10204 3.1-Inspection Certificate for instrument with test data (EN 10204)	W01 Y16 C15 C25
Approvals Without approvals Shipping approvals ⁵⁾ Overfill protection (WHG) ¹⁾ Canada/US for Ex-free area (including Ordinary Location Approval) ⁷⁾	1 2 3 4	Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Process temperature Standard -40 ... +100 °C (-40 ... +212 °F) ²⁾ Extended -40 ... +150 °C (-40 ... +302 °F) ²⁾⁶⁾ Hygienic applications -40 ... +150 °C (-40 ... +302 °F) ³⁾	A B C	Spare Parts LVL100 Threaded Welded Socket	Article No.
Process connection Thread G $\frac{3}{4}$ " A PN 64/316L Thread G $\frac{3}{4}$ " A PN 64/316L Ra < 0.8 µm Thread $\frac{3}{4}$ " NPT PN 64/316L Thread $\frac{3}{4}$ " NPT PN 64/316L Ra < 0.8 µm Thread G1" A PN 64/316L Thread G1" A PN 64/316L Ra < 0.8 µm Thread 1" NPT PN 64/316L Thread 1" NPT PN 64/316L Ra < 0.8 µm Tri-Clamp 1" PN 16 DIN 32676/316L Ra < 0.8 µm Tri-Clamp 1½" PN 16 DIN 32676/316L Ra < 0.8 µm Tri-Clamp 2" PN 16 DIN 32676/316L Ra < 0.8 µm Bolting DN 25 PN 40 DIN 11851/316L Ra < 0.8 µm Bolting DN 40 PN 40 DIN 11851/316L Ra < 0.8 µm Bolting DN 50 PN 25 DIN 11851/316L Ra < 0.8 µm SMS DN 38 PN 6 316L Ra < 0.8 µm Hygienic fitting with compression nut F40 PN 25/316L Ra < 0.8 µm Thread G½" (DIN 3852-A) PN 64 / 316L Thread G½" (DIN 3852-A) PN 64 / 316L Ra < 0.8 µm Thread ½" NPT (ASME B1.20.1) PN 64/316L Thread ½" NPT (ASME B1.20.1) PN 64/316L Ra < 0.8 µm Thread R¾" PN 64, EN 10226-1/316L R1 Thread R1 PN 64, EN 10226-1/316L RF Thread R1 PN 64, EN 10226-1/316L (Ra < 0.8 µm)	A 0 A 1 A 2 A 3 A 4 A 5 A 6 A 7 A 8 B 0 B 1 B 2 B 3 B 4 B 5 B 6 C 0 C 1 C 2 C 3 D 0 D 1 D 2	G $\frac{3}{4}$ " A/316L with FKM Seal G1" A/316L with FKM Seal M27 x 1.5/316L with FKM Seal G $\frac{3}{4}$ " A/316L with EPDM Seal G1" A/316L with EPDM Seal M27 x 1.5/316L with EPDM Seal	7ML1930-1EE 7ML1930-1EF 7ML1930-1EG 7ML1930-1EH 7ML1930-1EJ 7ML1930-1EK
Electronics Contactless electronic switch 20 ... 250 V AC/DC ⁴⁾ Transistor output PNP 10 ... 35 V DC	1 2		
Housing 316L	1		
Electrical connection/Protection M12 x 1/IP67 According to ISO4400 including plug/ IP65 According to DIN 43650 incl. plug with QuickOn connection/IP65 M12 x 1 incl. 5 m cable/IP68 (0.2 bar)	A B C D		

¹⁾ Available only with Electronics option 2

²⁾ Available only with process connection A0, A2, A4, A6, C0, C2, D0 and D1

³⁾ Available only with process connection A1, A3, A5, and A7 ... B6, C1, C3 and D2

⁴⁾ Available only with Electrical connection/Protection option B and C

⁵⁾ Available only with Process Temperature options A and B

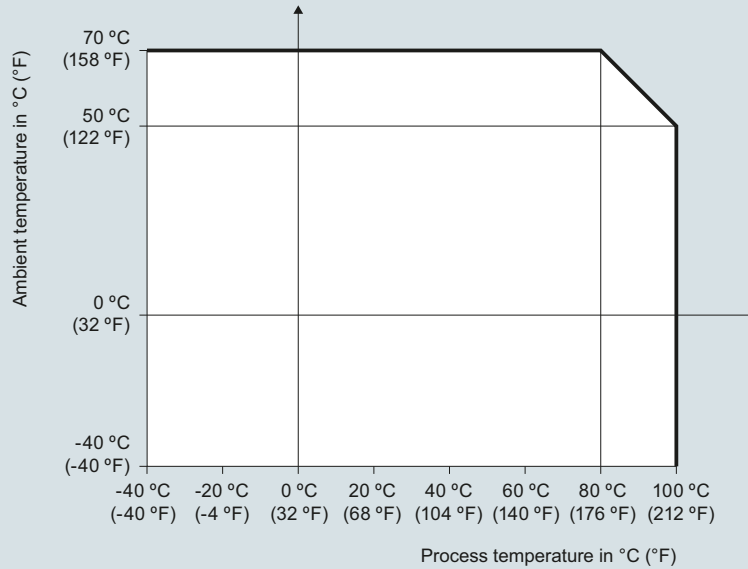
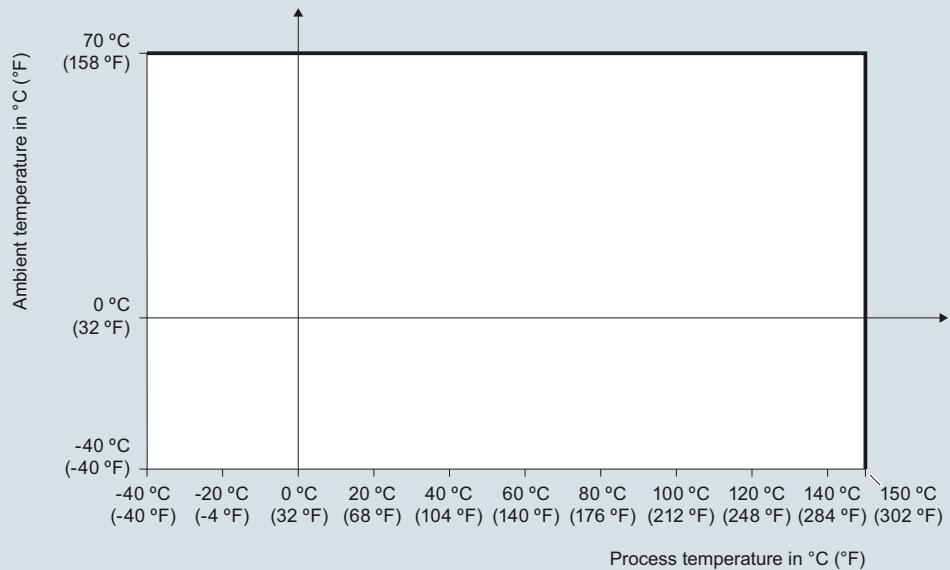
⁶⁾ Available only with shipping approvals DNV and GL

⁷⁾ Available only with Electrical connection/Protection option B

Level Measurement

Point level measurement

Vibrating switches

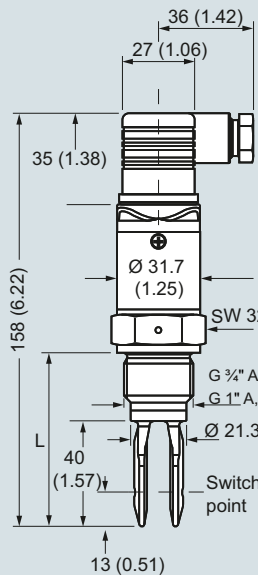
SITRANS LVL100**Characteristic curves****Ambient temperature to process temperature dependency
(standard version)****Ambient temperature to process temperature dependency
(high temperature version)**

SITRANS LVL100 ambient temperature/process temperature derating curves

Dimensional drawings

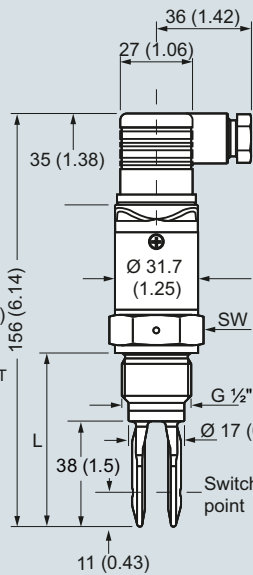
SITRANS LVL100 (standard)

Thread G 3/4" A, G 1" A
(DIN ISO 228/1),
3/4" NPT or 1" NPT
(valve plug ISO 4400)



L =
Length with G 3/4" A, 3/4" NPT: 66 (2.6)
Length with G 1" A, 1" NPT: 69 (2.7)

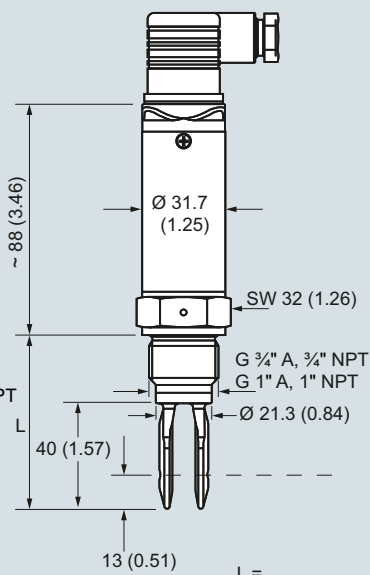
Thread G 1/2" A
(DIN ISO 228/1),
1/2" NPT
(valve plug ISO 4400)



L =
Length with G 1/2" A, 1/2" NPT: 62 (2.4)

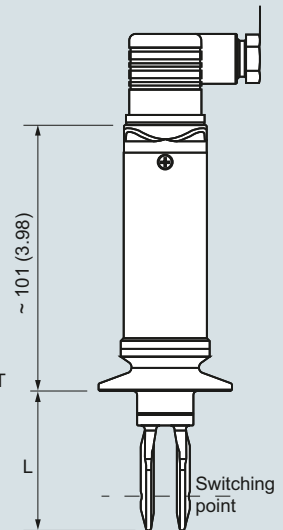
SITRANS LVL100 (extended high temperature)

Thread G 3/4" A, G 1" A
(DIN ISO 228/1),
3/4" NPT or 1" NPT
(valve plug DIN 43650)

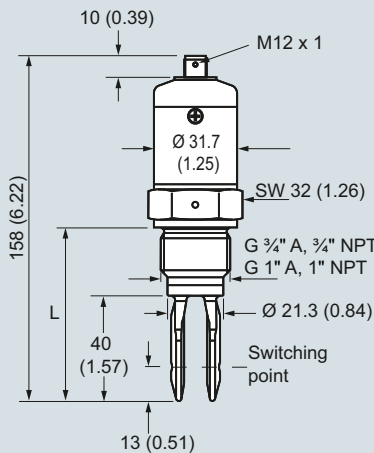


L =
Length with G 3/4" A, 3/4" NPT: 66 (2.6)
Length with G 1" A, 1" NPT: 69 (2.7)
Length with Tri-clamp: 53 (2.1)

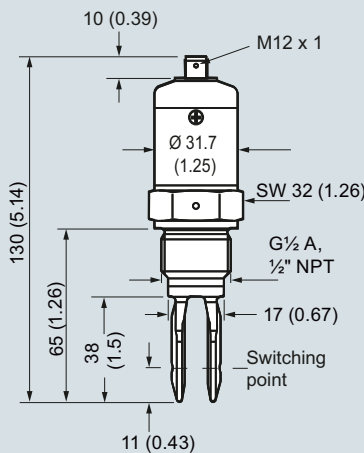
Tri-clamp (valve plug DIN 43650)



SITRANS LVL100 (standard with M12 connector)



L =
Length with G 3/4" A, 3/4" NPT: 66 (2.6)
Length with G 1" A, 1" NPT: 69 (2.7)

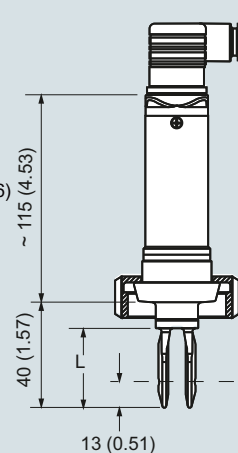


L =
Length with G 1/2" A, 1/2" NPT: 62 (2.4)

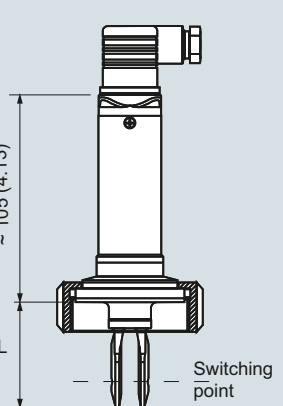
SITRANS LVL100 (extended, high temperature)

Bolting DIN 11851
(valve plug DIN 43650)

SMS 1145
(valve plug DIN 43650)



L =
Length with bolting: 53 (2.1)
Length with SMS 1145: 53 (2)



SITRANS LVL100, dimensions in mm (inch)

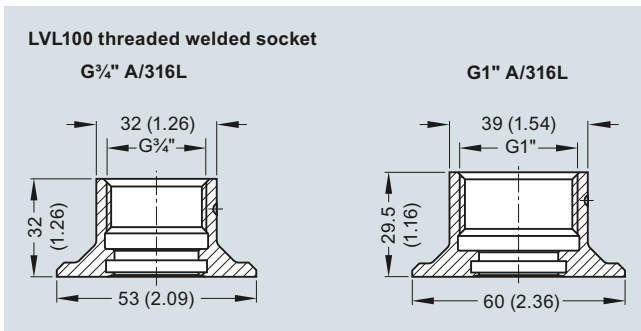
Level Measurement

Point level measurement

Vibrating switches

SITRANS LVL100

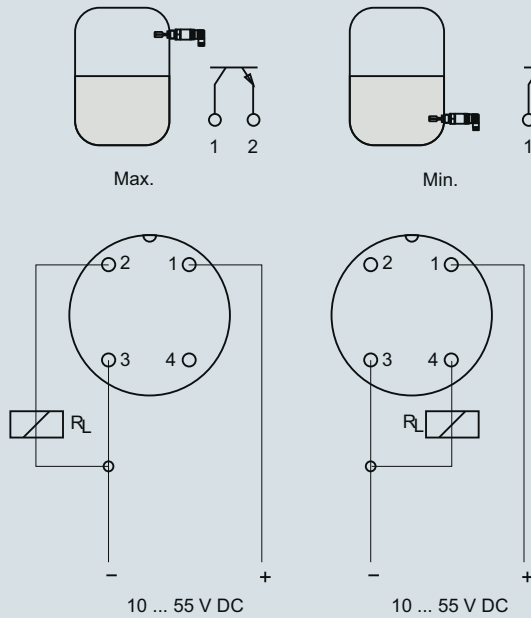
Options



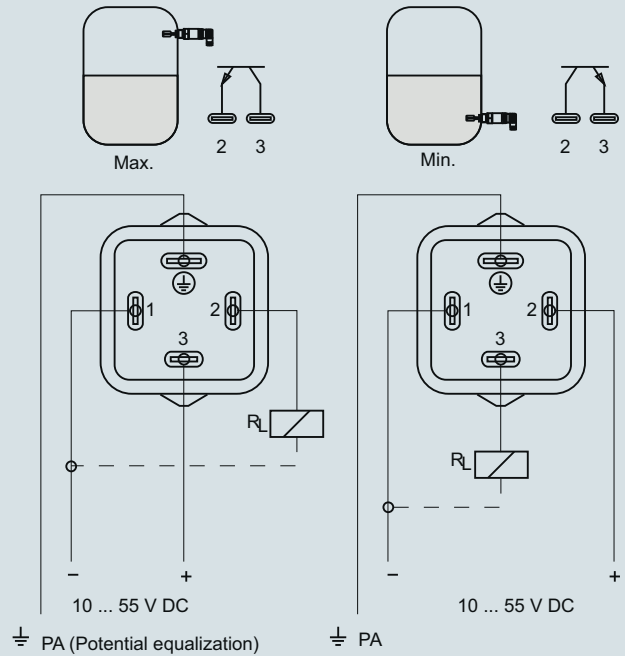
SITRANS LVL100 welded socket, dimensions in mm (inch)

Circuit diagrams

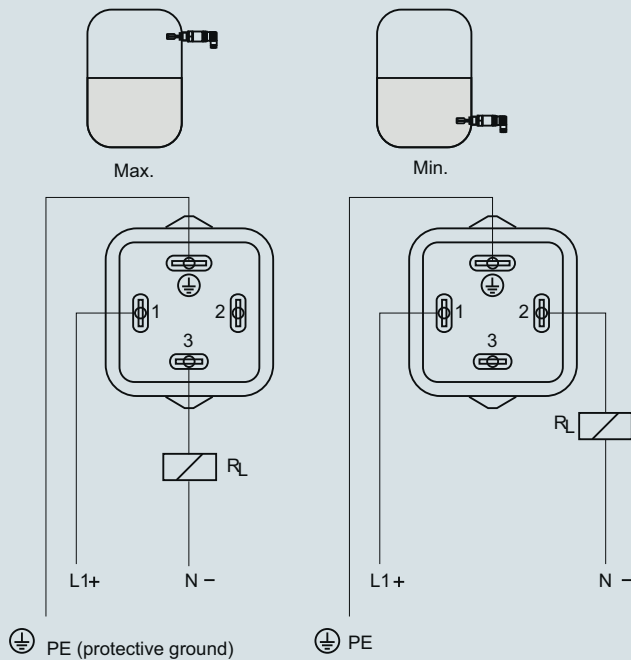
Transistor PNP (M12 x 1 plug connection)



Transistor PNP (with valve plug DIN 43650)



Contactless electronic switch (valve plug DIN 43650)



SITRANS LVL100 connections