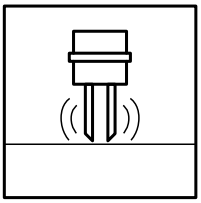
Vibration Limit Switch

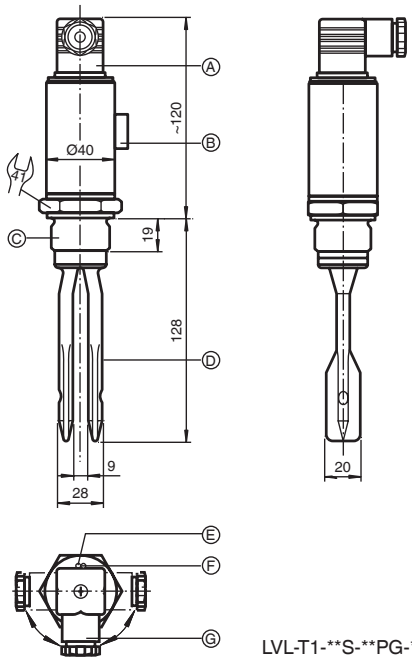
LVL-T1



Features

- Level limit switch for liquids
- External test option using test magnet
- On-site function control using external LED display
- Easy to install even at points difficult to access due to compact design
- Due to its compact construction, it can be directly connected to a miniature contactor, magnet operated valve or programmable logic control (PLC)
- Rugged stainless steel housing
- Cost-saving plug connections

Dimensions



LVL-T1-**S-**PG-**

A) PG11 cable gland (IP65/IP67)
B) Test magnet
C) G1A (cylindrical), 1 NPT (conical), R 1 (conical), made of corrosion resistant steel
D) Vibration fork made of heavy duty corrosion resistant steel
E) Green light-emitting diode "ready to operate"
F) Red light-emitting diode for switch indicator "circuit cut off"
G) The connector housing can be mounted at a 90° angle.

Function

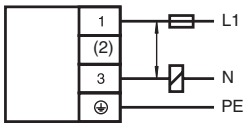
The symmetrical vibrating probe vibrates at its resonance frequency. If it is submerged in liquid, this resonance frequency changes, and the electronics activate an electronic switch.

The Vibracon LVL-T1 can be operated in minimum or maximum closed circuit safety, i. e. the electronic switch closes by obtaining the limit level, by fault and by power failure.

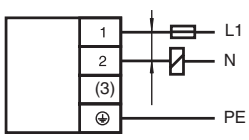
Electrical connection

Connection output WA

Maximum fail-safe mode



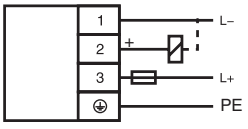
Minimum fail-safe mode



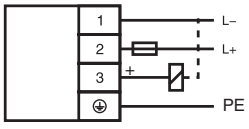
Connection output E5

R = external load

Maximum



Minimum



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Application	
Description	level limit switch for application in storage tank, stirring container and pipeline with liquids
Output characteristics	
Signal on alarm	Output locked
Fail-safe mode	Minimum/maximum closed circuit safety, determined by the way of connection
Switching time	when covering the sensor approx. 0.5 s, when uncovering the sensor approx. 1.0 s
Load	output WA (load switched across thyristor directly in power supply circuit): - transient (40 ms): max. 1.5 A, max. 375 VA at 250 V or max. 36 VA at 24 V (not short- circuit proof) - continuous: max. 87 VA at 250 V, max. 8.4 VA at 24 V, min. 2.5 VA at 250 V (10 mA), min. 0.5 VA at 24 V (20 mA) - residual current max. 4 mA with blocked thyristor output E5 (the load is switched via a transistor and a separate connection): - transient (1 s): max. 1 A, max. 55 V (overload and short-circuit protection) - continuous: max. 350 mA, max. 0.5 µF at 55 V, max. 1 µF at 24 V - residual voltage < 3 V (with closed transistor) - residual current < 100 µA (with open transistor)
Auxiliary energy	
Electrical connection	output WA: Always connect the LVL-T1 in series with a load! Take into account the voltage drop via the LVL-T1 when switched in circuit and the residual current when isolated (see technical data, output) and, for low supply voltages, take into account the voltage drop via the load, in order to ensure that the terminal voltage on the LVL-T1 does not fall below the permissible value. output E5: Should be used in conjunction with programmable logic controllers (PLC), positive signal on the sensor switch output (PNP). The protective circuit is implemented in the connection.
Supply voltage	output WA: 19 ... 253 V AC, 50/60 Hz, output E5: 10 ... 55 V DC
Current consumption	output WA: max. 4 mA (stand by), output E5: max. 15 mA
Residual ripple	output E5: max. 1.7 V , 0 ... 400 Hz
Voltage drop	output WA: max. 12 V
Reverse polarity protection	yes
Measurement accuracy	
Hysteresis	approx. 4 mm with vertical mounting
Operating conditions	
Installation conditions	
Installation position	any position
Ambient conditions	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)
Storage temperature	-40 ... 85 °C (-40 ... 185 °F)
Process conditions	
Medium temperature	-40 ... 150 °C (-40 ... 302 °F)
Process pressure (static pressure)	-1 ... 40 bar (-14.5 ... 580.2 psi)
Density	min. 0.7 g/cm^3
Viscosity	max. 10000 mm^2/s (10000 cSt)
Mechanical specifications	
Protection degree	IP65/IP67 with connector (PG11 cable gland)
Mechanical construction	
Construction type	compact device
Versions	- LVL-T1-G3S-E5PG-NA, process connection G1, 10 ... 55 V DC, PNP 3-wire, connector PG11 - LVL-T1-G3S-E5PG-WH, process connection G1, 10 ... 55 V DC, PNP 3-wire, connector PG11, overspill protection WHG - LVL-T1-G3S-WAPG-WH, process connection G1, 19 ... 253 V AC, 3-wire, connector PG11, overspill protection WHG All above-mentioned versions are also available with thread 1 NPT.
Dimensions	see dimensions
Mass	approx. 450 g
Material	process connection and vibration fork: stainless steel 1.4571/316Ti housing: stainless steel 1.4404/316L housing cover: PPSU connector: PA plug seal: Elastomer flat seal ring for process connection G1A: elastomer fibre, asbestos-free, unaffected by oils, solvents, vapour, weak acids and alkalis
Surface quality	R_a < 3.2 µm/80 grit
Process connection	- cylindrical thread G1A in acc. with DIN ISO 228/1 with flat seal 33 x 39 in acc. with DIN 7603 - conical thread 1 NPT in acc. with ANSI B 1.20.1 - conical thread R1 in acc. with DIN 2999, part 1
Electrical connection	4-pin plug connection in acc. with DIN 43650-A, ISO 4400 with cable gland PG11, for cable diameter 6 ... 9 mm (0.24 ... 0.35 in), max. conductor cross section 1.5 mm^2

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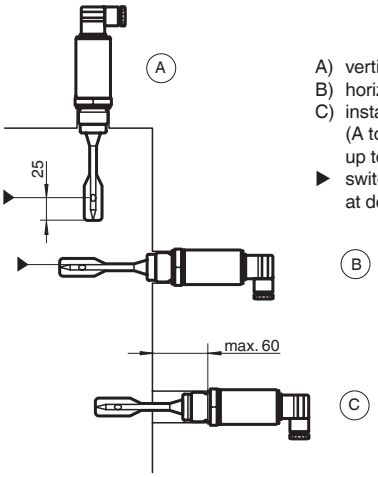
Indication and operation	
Display elements	The LED display is on the connection side. green LED: indication of ready to operate red LED: switch indication circuit cut off
Function test	function test with test magnet: Put the testing magnet to the shown location (see graph). The vibration fork reacts with the test magnet as in the case of covering with fluid.
Certificates and approvals	
Overspill protection	Z-65.11-302 (overspill protection in acc. with WHG)
General information	
Directive conformity	
Directive 73/23/EEC (Low Voltage Directive)	output WA: EN 50178
Directive 89/336/EEC (EMC)	emitted interference to EN 50081-1 and EN 61326, class B equipment noise immunity to EN 50082-2 (field strength 10 V/m) and EN 61326, annex A (industrial sector)
Conformity	
Electromagnetic compatibility	NE 21
Protection degree	EN 60529
Climate class	EN 60068, part 2-38, fig. 2a
Supplementary documentation	operating instructions KA035O operating instructions KA032O weld-in adapter G1A (LVL-Z70) operating instructions KA151O sliding sleeve for unpressurised operation G1A, 1 NPT (LVL-Z120, LVL-Z122) operating instructions KA153O high pressure sliding sleeve G1A, 1 NPT (LVL-Z124, LVL-Z125, LVL-Z128, LVL-Z129) approval ZE186O overspill protection in acc. with WHG (Z-65.11-302)
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

Mounting position



A) vertical installation
B) horizontal installation
C) installation in 1" nozzles
(A to C for the entire viscosity range
up to 10000 mm^2/s)
▶ switching point depending on the installation direction
at density 0.7 g/cm^3

Accessories

- LVL-Z15, test magnet
- LVL-Z64, socket spanner
- LVL-Z70, welding bushing for vessels G1, viton sealing
- LVL-Z120, sliding sleeve for unpressurised operation G1A
- LVL-Z122, sliding sleeve for unpressurised operation 1 NPT
- LVL-Z124, high pressure sliding sleeve G1A
- LVL-Z125, high pressure sliding sleeve G1A
- LVL-Z128, high pressure sliding sleeve 1 NPT
- LVL-Z129, high pressure sliding sleeve 1 NPT

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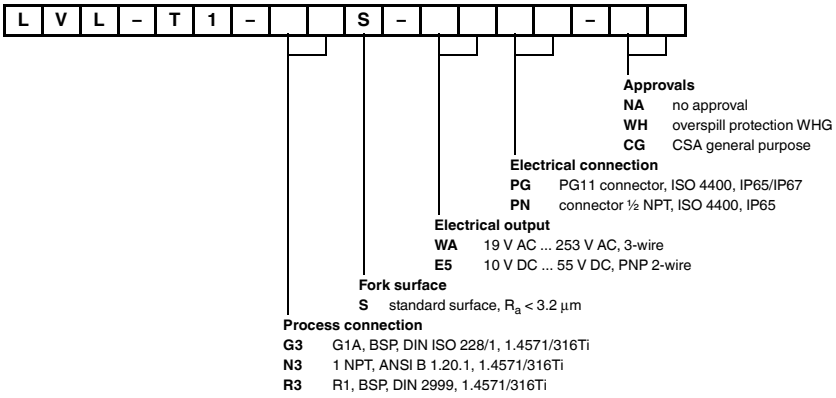
Type code/model number



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