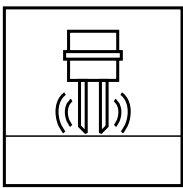


Vibrating Limit Switch LVL



LVL-N



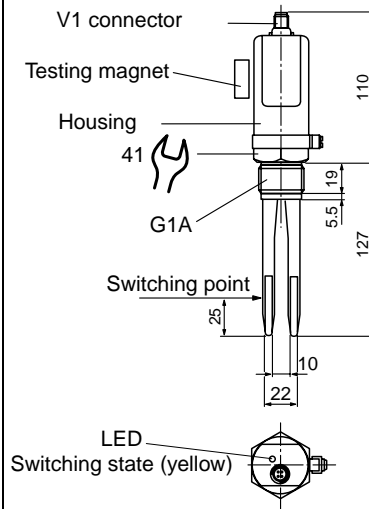
Features

- Vibration limit switch for liquids
- Ex-version with intrinsically safe NAMUR-switching signal, applicable in Ex-Zone 0
- Lead short circuit and lead breakage control
- Stainless steel housing for rough environmental conditions
- Function test with testing magnet in mounted position.

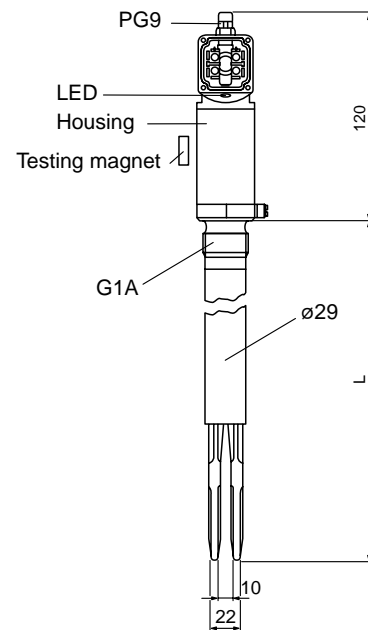
Function test with the testing magnet

- Put the testing magnet to the shown location. The state of the output will be the same as with a covered vibration fork.

Dimensions



Compact version
LVL1□□□-V1



Extended version
LVL2□□□-PG



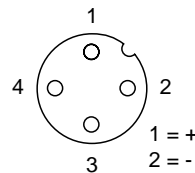
Please specify the length (L) if you order an extended version. The testing magnet has to be ordered separately (accessory). For a V1-connection - the necessary accessory is a V1 cable connection box (see accessories).

Function principle

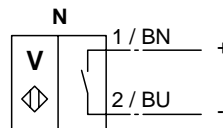
The vibration fork is actuated piezoelectrically. It is vibrating with its resonance frequency in air. Liquids getting into contact with the fork are changing this frequency. This change is evaluated electronically and produces the switching signal.

Electrical connection

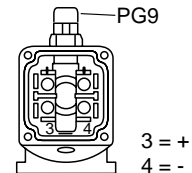
Plug connector V1



Electrical connection



Terminal compartment connection



Technical data

Approvals/Certifications

Information about approvals and certifications can be found at www.pepperl-fuchs.com.

Ignition protection class

Device groups

Data according to the design test certificate

U_i ≤ 16 V
 I_i ≤ 88 mA
 P_i ≤ 198 mW

Supply

Nominal voltage according to EN 60947-5-6 (NAMUR)
 DC 8.2 V ± 2 % from the isolation amplifier
 unswitched <1.2 mA/switched >2.1 mA
 negligible
 < 60 μH
 III

Function test

Z.65-11.172 (Wasserhaushaltsgesetz WHG § 19)
 DMT 98 ATEX E 004 (acc. to directive 94/9/EG (ATEX): II 1G, II ½D, II ⅓D) (Explosion Protection) 13376-98HH (Germanischer Lloyd)
 Gas-Ex: EEx ia IIC
 EEx ia IIB LVL□□-□□□-N-PG
 Dust Ex: IP65 T 160 °C
 Gas-Ex-zone 0: all variants
 Dust-Ex-zone 20/21: LVL□□-□□□S-N-CSM
 Dust-Ex-zone 20/22: LVL□□-□□□-N-PG

Switching delay

when covering approx. 0.5 s
 when uncovering approx. 0.5 s

Indicators

Switching state LED, yellow

Temperature conditions

Ambient temperature -25 °C ... +70 °C
 Limitation in dust-Ex-zone 21 and 22:

max. surface temperature sensor housing °C	50	80
Ambient temperature °C	40	70

Media temperature

-25 °C ... +120 °C
 Limitation in gas-Ex:

Temperature class	T6	T5	T4	T3
Media temperature °C	<80	<95	<120	<120

Limitation in dust Ex-zone 20:

max. surface temp. of the fork °C	50	80	120	120
Media temperature °C	40	70	120	120

Process conditions

Pressure ≤ 40 bar
 Density ρ ≥ 0.6 g/cm³
 Viscosity max. 10 000 mPa s
Protection class acc. to IEC 60529 IP67

Vibrating Limit Switch LVL-N

Conventional versions

Compact version LVL1

- **LVL1S-G3S-N-V1**
 fork: stainless
 steel housing: plastic
- **LVL10-G3OS-N-V1**
 fork: polished stainless steel
 housing: stainless steel

Extended version LVL2

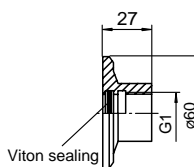
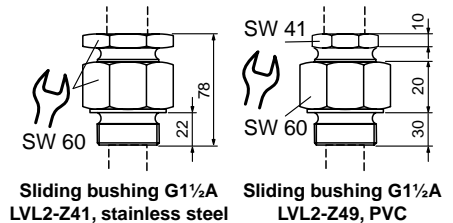
- **LVL2S-G3S-N-V1**
 fork: stainless steel
 housing: plastic
- **LVL20-G3OS-N-V1**
 fork: polished stainless steel
 housing: stainless steel

1" NPT-version

- all types are available with 1" NPT threadtype LVL□□-N3□-N-V1

Accessories

- V1-G-N-5M-PUR, cable connection box, straight
- V1-G-N-5M-PUR, cable connection box, straight, with 5 m cable
- V1-W-N-5M-PUR, cable connection box, 90° angled
- V1-W-N-5M-PUR, cable connection box, 90° angled, with 5 m cable
- LVL-Z15, test magnet
- LVL2-Z41, sliding bushing G1½A, stainless steel 1.4571 (for unpressurised operation)
- LVL2-Z49, sliding bushing G1½A, PVC (for unpressurised operation)
- LVL-Z61, welding bushing for vessels G1, Viton sealing



Welding bushing LVL-Z61

A measuring system consists of:

- a vibration limit switch LVL-N, a cable connection box and a transformer isolated barrier
 e. g. KFD2-SR2-Ex1.W

Vibrating Limit Switch LVL-N

Key to model numbers/ordering code

Notes

- When using a sliding bushing, special attention must be paid to the resistance of the sealing rings and plastic material to the medium that is involved. Faults lead to a down grading in zone classification.
- On versions with Varivent, milk tube or Triclamp connection, it must be ensured that they are safely isolated in zone 0.
- On flanged versions, the flange rated pressure must not be exceeded.
- When using the external connections for the equipotential bonding conductor, these should be smeared with terminal grease.

Vibracon LVL-Namur

Measuring range

- 1 Compact version
- 2 Extended version, rod length 170 mm ... 3000 mm

Surface of fork

- S Stainless steel (1.4581)
- O Polished stainless steel (1.4581)
- H ECTFE (Halar coated)(in combination with process connection F*and A*)
- C Hasteloy C (2.4610)(in combination with process connection G3, N3, FC, AC)

Process connection

- G 3 G1A thread
- N 3 1" NPT thread
- M 4 Milk pipe DN40, DIN11851
- T 2 Triclamp 2"
- F 1 Flange DN50 PN40
- F C Flange DN50 PN40 (Hastelloy C plated)
- A 2 Flange ANSI 2", 150 lbs
- A C Flange ANSI 2", 150 lbs (Hastelloy C plated)
- - other process connections

Material/surface process connection

- S Stainless steel (1.4571)
- O Polished stainless steel (1.4571)
- H ECTFE (Halar coated)(in combination with process connection F*and A*)
- C Hasteloy C (2.4610)(in combination with process connection G3, N3, FC, AC)

Material housing

- / Plastic (PBT), with V1 connection
- S Stainless steel, with V1 connection or terminal compartment connection PG9

Electrical output

- N According to EN 60947-5-6 (Namur)

Specialities

- V 1 Plug connection
- P G Terminal compartment connection PG9

Approvals

- G Approval GL (only for stainless steel housing and plug connector V1)

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