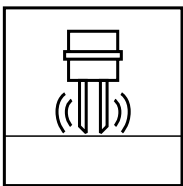


## Vibrating Limit Switch LVL



### LVL-N



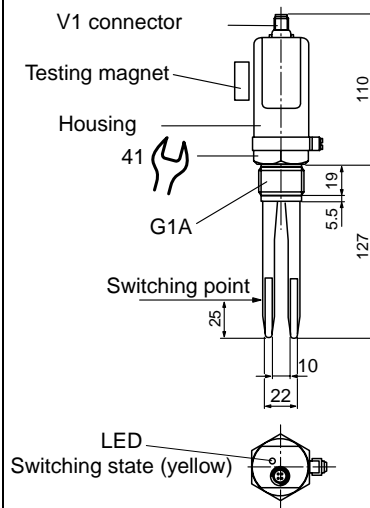
### Features

- 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.

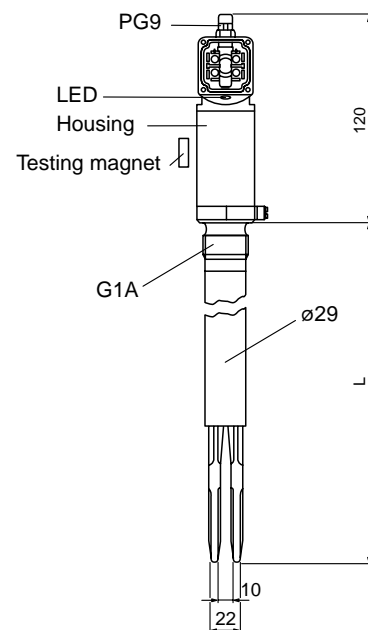
### Function test with the testing magnet

- 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**



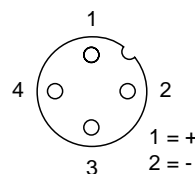
Please specify the length (L) if you order an extended version.  
The testing magnet has to be ordered separately (accessory).  
For a V1-connection - the necessary accessory is a V1 cable connection box (see accessories).

### Function principle

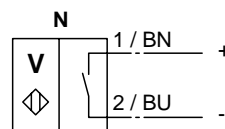
The vibration fork is actuated piezoelectrically. It is vibrating with its resonance frequency in air. Liquids getting into contact with the fork are changing this frequency. This change is evaluated electronically and produces the switching signal.

### Electrical connection

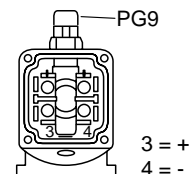
#### Plug connector V1



#### Electrical connection



#### Terminal compartment connection



## Technical data

### Approvals/Certifications

Information about approvals and certifications can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

### Ignition protection class

### Device groups

### Data according to the design test certificate

$U_i$

$I_i$

$P_i$

### Supply

Nominal voltage

Nominal current

max. self capacitance

max. self inductance

Protection class

### Function test

### Switching delay

when covering

when uncovering

### Indicators

Switching state

### Temperature conditions

Ambient temperature

Media temperature

### Process conditions

Pressure

Density  $\rho$

Viscosity

### Protection class acc. to IEC 60529

Z.65-11.172 (Wasserhaushaltsgesetz WHG § 19)  
DMT 98 ATEX E 004 (acc. to directive 94/9/EG  
(ATEX): II 1G, II 1/2D, II 1/3D) (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

$\leq 16$  V  
 $\leq 88$  mA  
 $\leq 198$  mW

according to EN 60947-5-6 (NAMUR)  
DC 8.2 V  $\pm$  2 % from the isolation amplifier  
unswitched <1.2 mA/switched >2.1 mA  
negligible  
< 60  $\mu$ H  
III

Performed with test magnet (accessories) on mounted device. Sequential circuits can be proved (like PLCs or control systems) without demounting the device and without media contact.

approx. 0.5 s  
approx. 0.5 s

LED, yellow

-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	

-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

$\leq 40$  bar  
 $\geq 0.6$  g/cm<sup>3</sup>  
max. 10 000 mPa s  
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

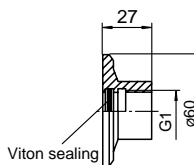
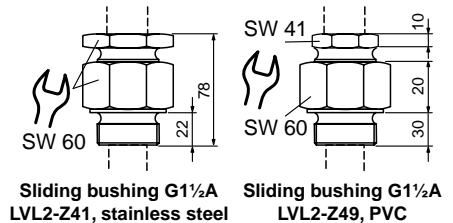
- LVL2S-G3S-N-V1**  
fork: stainless steel  
housing: plastic
- LVL20-G3OS-N-V1**  
fork: polished stainless steel  
housing: stainless steel

#### 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

### 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.

## Key to model numbers/ordering code

### 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
- 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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