

LFV12... LFV11... Compact Vibrating Fork Level Switch for Liquids

Technical Specification Document

Approvals & Certifications:



Bid Specs:

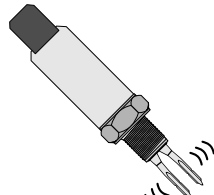
NAMUR-LH edge & HL edge



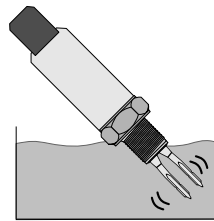
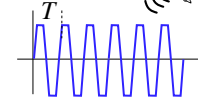
LFV12

LFV11

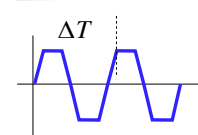
Operating Principle



Electronics of LFV excites the piezo-electric-crystals inside tuning fork, which makes the fork tines vibrate at their natural resonance frequency in free air.



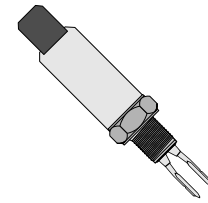
When fork tines are immersed in liquid, the frequency of fork vibration falls due to the density of liquid.



This change in frequency is detected by electronic circuit.

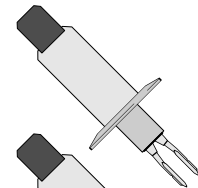
Liquid presence is thus detected.

Compact Process Connection

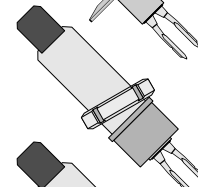


½" NPT
½" BSP

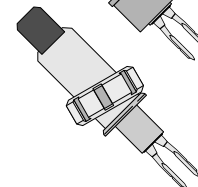
Hygienic Process Connections



1" to 1½"
Tri-Clover



1" Flush
Mounting



1" SMS Union

Compact Size

Durable Construction

Immune to External Vibrations

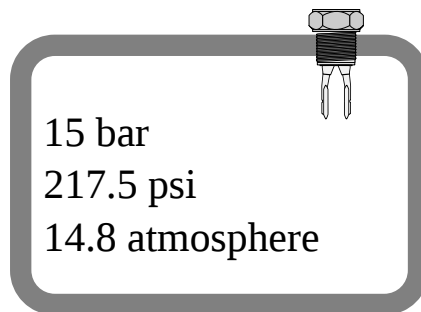
No Calibration Required

Easy Installation

External Magnetic Key Test

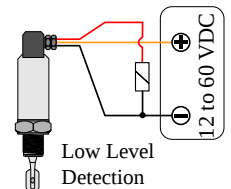
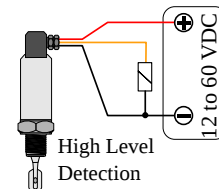
Order Code

High Pressure Resistant Forks

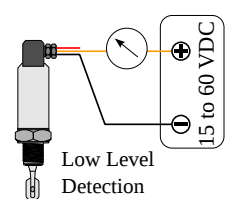
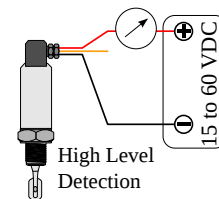


15 bar
217.5 psi
14.8 atmosphere

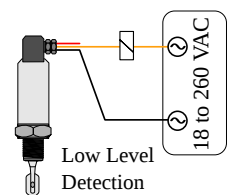
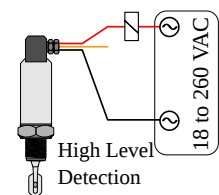
PNP with DC Supply



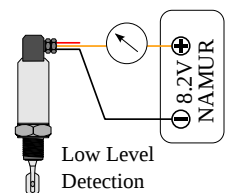
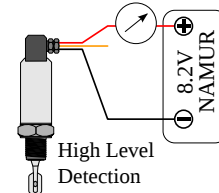
Two wire 8/16 mA Signal



Two-wire AC with Series Relay



NAMUR (1mA/2mA) @ 8.2V



- LFV12 Compact Vibrating Fork Level Switch for Liquids (50 mm ½" entry fork)
 Tx Material Temperature (T1: max 80°C, T2: max 150°C)
 Px Process Connection Type (Material is SS316)
 (PB1: BSP 1", PB2: BSP ½", PB3: BSP ¾")
 (PN1: NPT 1", PN2: NPT ½", PN3: NPT ¾")
 (PT1: Tri-Clover 1"... 1½")
 (PS1: SMS Union 1")
 (PF1: Flush-Mount 1")
 (PCS: Customized Process Connection to be specified)
 Ox Electronics Power and Output Type
 (OP: DC supply PNP output)/(OS: DC supply NPN output)
 (OL: two wire DC supply with 8/16mA current output suitable for 4-20mA inputs)
 (OR: two wire AC supply with current output for external series relay)
 (ON: two wire NAMUR @8.2V with 1mA/2mA LH-edge, OM: same as ON with HL edge)

- LFV11 Compact Vibrating Fork Level Switch for Liquids (100 mm 1" entry fork)
 Tx Material Temperature (T1: max 80°C, T2: max 150°C)
 Px Process Connection Type (Material is SS316)
 (PB1: BSP 1") (PN1: NPT 1")
 (PT1: Tri-Clover 1½", PT2: Tri-Clover 2")
 (PCS: Customized Process Connection to be specified)
 Ox Electronics Power and Output Type
 (OP: DC supply PNP output)/(OS: DC supply NPN output)
 (OL: two wire DC supply with 8/16mA current output suitable for 4-20mA inputs)
 (OR: two wire AC supply with current output for external series relay)

Technical Specification

Features

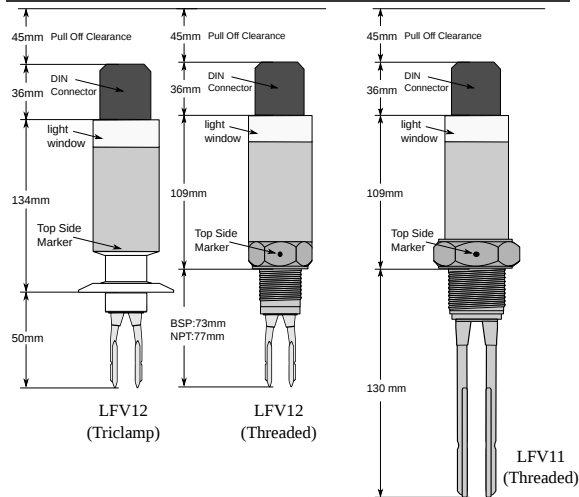
1. Fast Switching Response 1 sec
2. Minimum ½" (LFV12) process connections
3. High pressure up-to 15 bar
4. High Temperature up-to 150 °C available
5. No Calibration Required
6. Integral LED indication
7. Threaded & Hygienic process connections
8. External magnetic key test point for simulation
9. IP-65/67 Stainless Steel Enclosure as per IS-13947
10. Vibration complied as per IEC 60068 part 2-6
11. Low power consumption

Applications

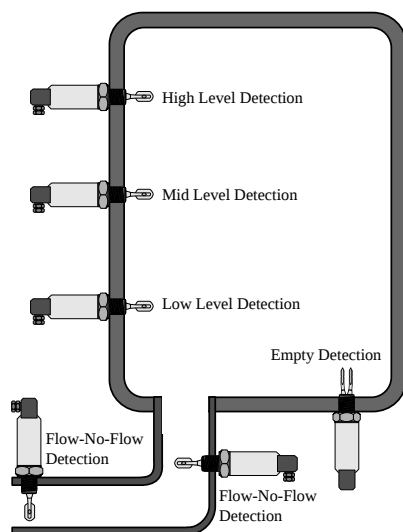
Vibrating fork level limit switch used as a full, empty and demand alarm in fluid containers, tanks containing liquids of various types, including milk & milk products, edible oil, fuel oil, lube oil, brewery, pharmaceutical fluids etc. LFV11 can be used in solid also.

Also for Flow-No-Flow/Empty Pipe Detection.

Dimensions



Typical Mounting Positions



Specifications

| | |
|---|--|
| Electronics Type : OP/OS | DC Supply with Source or Sink Output OP : PNP DC, OS :NPN DC |
| Supply | 12 to 60 VDC |
| Output Limit | 250mA max. Short Circuit Safe. |
| Electronics Type : OL | Loop Powered Two Wire DC 8 / 16 mA |
| Supply | 15 to 60 VDC |
| Output Limit | 8mA (-1mA max) / 16mA (+1mA max) |
| Electronics Type : OR | Two Wire AC for series Relay |
| Supply | 18 to 260 VAC |
| Output Limit | not less than 5mA to release external relay maximum 150mA to magnetize relay Use relays/contactors will more than 5mA holding current |
| Electronics Type : ON/OM | Two Wire NAMUR 1 / 2 mA |
| Supply | ON : LH-edge, OM : HL-edge |
| Output Limit | 8.2 VDC (NAMUR) (1.2 mA max) / (2 mA min / 2.1mA min) |
| Max. Viscosity | 10,000 cStokes (= cPose/(g/cm ³)) (Higher viscosity available on request) |
| Ambient Temp. | -20°C ... 70°C (-4°F ... 158°F) |
| Process Temp. | -20°C ... 80°C (-4°F ... 176°F) |
| Extended Process Temperature | -30°C ... 150°C (-22°F ... 302°F) (extensions & heat sinks required) |
| Process Pressure | absolute / max. 15 bar |
| Wetted Parts | SS 316 or SS 316L |
| Process Connections LFV12 (Material SS316) | Threaded NPT / BSP ½", ¾", 1" Tri-Clamp 1"...1½", SMS Union 1" Flush Mounting 1", 1½" |
| Process Connections LFV11 (Material SS316) | Threaded NPT / BSP 1", Tri-Clamp 1½", Tri-Clamp 2" |
| Enclosure Material | SS316 |
| Enclosure Protection Class | IP-65/67 as per IS-13947 |
| Vibration Test | As per IEC 60068 part 2-6 sinusoidal, 10-55Hz, 0.15mm |
| External Indication | Green LED : Power On Indicator Red LED : Alarm Indicator |
| Sensor Insertion Length | LFV12 : 50 mm excluding threads LFV11 : 128 mm including threads |

Specifications are subject to change without prior notice