

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

Technical Specification Document

Approvals & Certifications:



Bid Specs:

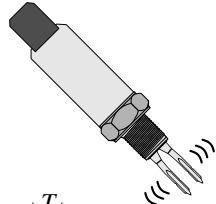
NAMUR-LH edge & HL edge



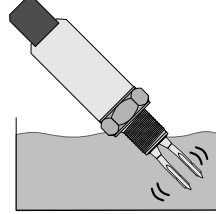
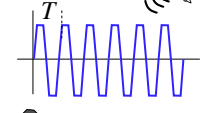
LFV12

LFV11

Operating Principle

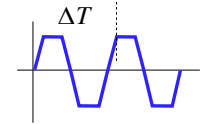


Electronics of LFV excites the piezo-electric-crystals inside tuning fork, which makes the fork tines vibrate at their natural resonance frequency in free air.



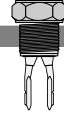
When fork tines are immersed in liquid, the frequency of fork vibration falls due to the density of liquid.

This change in frequency is detected by electronic circuit.



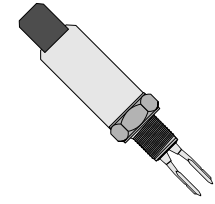
Liquid presence is thus detected.

High Pressure Resistant Forks



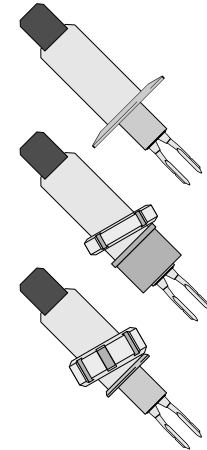
15 bar
217.5 psi
14.8 atmosphere

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

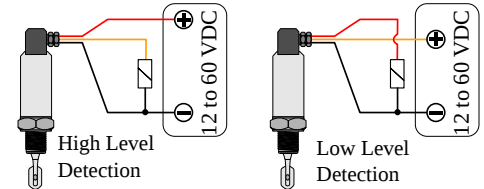
External Magnetic Key Test

Order Code

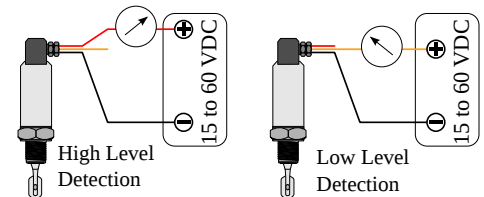
LFV12 Compact Vibrating Fork Level Switch for Liquids (50 mm ½" entry fork)
Tx Material Temperature (T1: max 80°C, T2: max 150°C)
Px Process Connection Type (Material is SS316)
 (PB1: BSP 1", PB2: BSP ½", PB3: BSP ¾")
 (PN1: NPT 1", PN2: NPT ½", PN3: NPT ¾")
 (PT1: Tri-Clover 1"... 1½")
 (PS1: SMS Union 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)

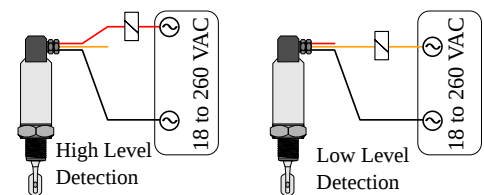
PNP with DC Supply



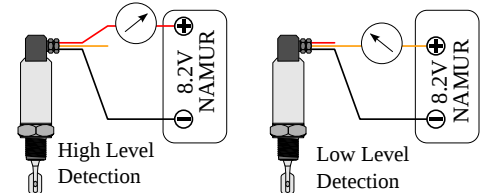
Two wire 8/16 mA Signal



Two-wire AC with Series Relay



NAMUR (1mA/2mA) @ 8.2V



Technical Specification

Features

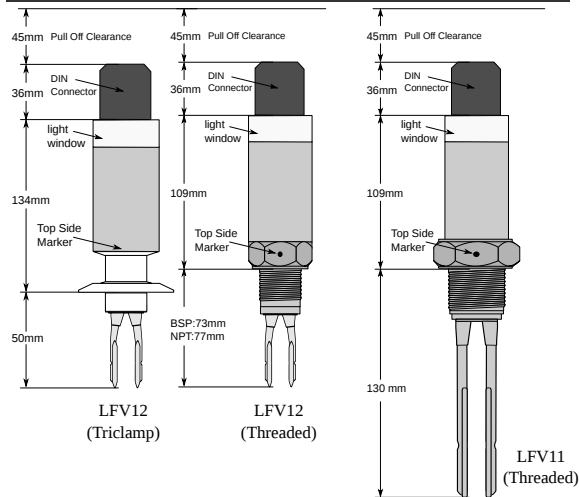
1. Fast Switching Response 1 sec
2. Minimum ½" (LFV12) process connections
3. High pressure up-to 15 bar
4. High Temperature up-to 150 °C available
5. No Calibration Required
6. Integral LED indication
7. Threaded & Hygienic process connections
8. External magnetic key test point for simulation
9. IP-65/67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

Applications

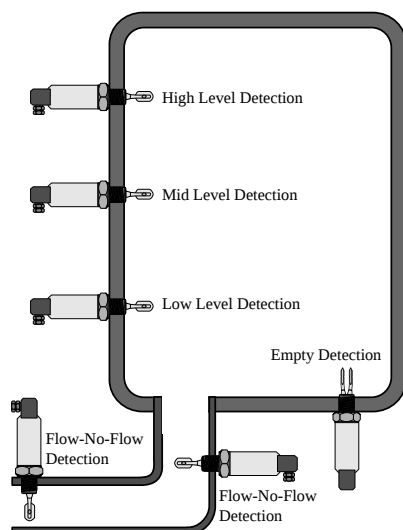
Vibrating fork level limit switch used as a full, empty and demand alarm in fluid containers, tanks containing liquids of various types, including milk & milk products, edible oil, fuel oil, lube oil, brewery, pharmaceutical fluids etc. LFV11 can be used in solid also.

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/cm3)) (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 LFBV12 (Material SS316)	Threaded NPT / BSP ½", ¾", 1" Tri-Clamp 1"...1½", SMS Union 1" Flush Mounting 1", 1½"
Process Connections LFBV11 (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