

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

Technical Specification Document

Approvals & Certifications:



Bid Specs:

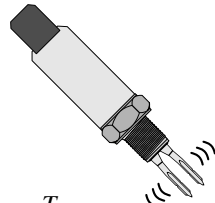
NAMUR-LH edge & HL edge



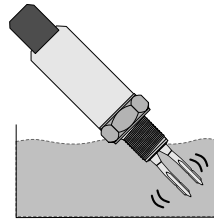
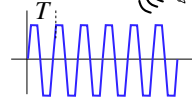
LFV12

LFV11

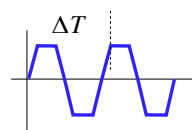
## Operating Principle



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.



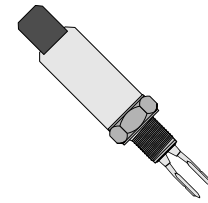
When fork tines are immersed in liquid, the frequency of fork vibration falls due to the density of liquid.



This change in frequency is detected by electronic circuit.

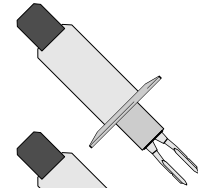
Liquid presence is thus detected.

## Compact Process Connection

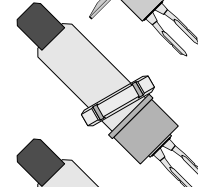


1/2" NPT  
1/2" BSP

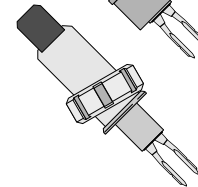
## Hygienic Process Connections



1" to 1 1/2"  
Tri-Clover



1" Flush  
Mounting



1" SMS Union

Compact Size

Durable Construction

Immune to External Vibrations

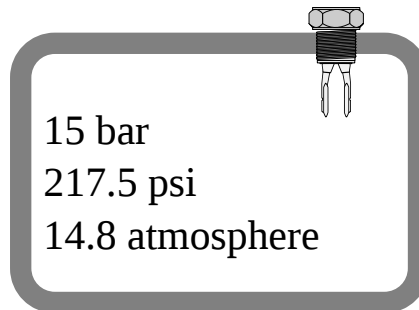
No Calibration Required

Easy Installation

External Magnetic Key Test

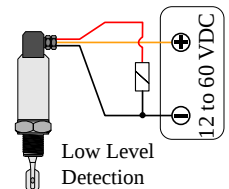
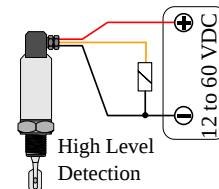
Order Code

## High Pressure Resistant Forks

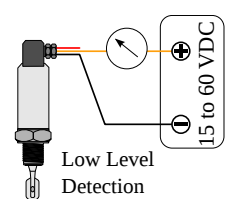
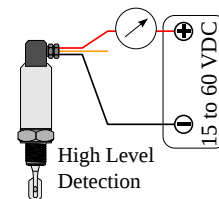


15 bar  
217.5 psi  
14.8 atmosphere

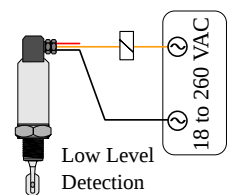
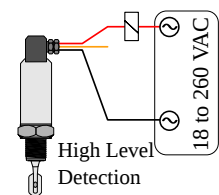
## PNP with DC Supply



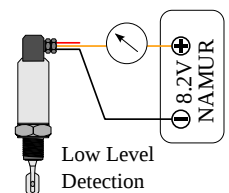
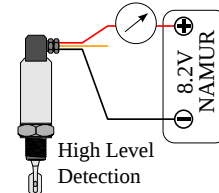
## Two wire 8/16 mA Signal



## Two-wire AC with Series Relay



## NAMUR (1mA/2mA) @ 8.2V



**LFV12** Compact Vibrating Fork Level Switch for Liquids (50 mm 1/2" 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 1/2", PB3: BSP 3/4")  
 (PN1: NPT 1", PN2: NPT 1/2", PN3: NPT 3/4")  
 (PT1: Tri-Clover 1"... 1 1/2")  
 (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 1 1/2", 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)

# LFV12, LFV11: Compact Vibrating Fork Liquid Level Switch

## Features

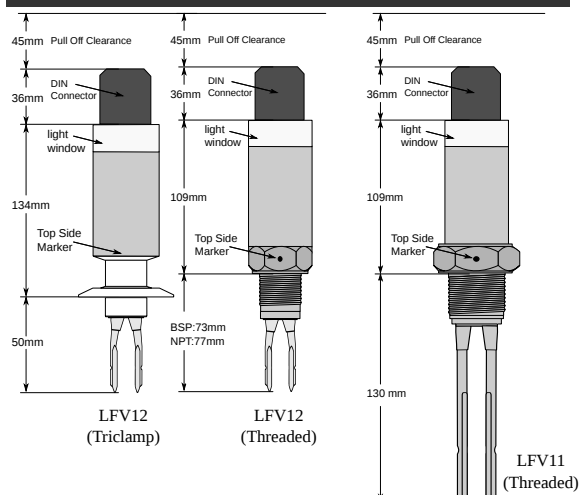
1. Fast Switching Response 1 sec
2. Minimum ½" (LFV12) process connections
3. High pressure up-to 15 bar
4. High Temperature up-to 150 °C available
5. No Calibration Required.
7. Integral LED indication
8. Threaded & Hygienic process connections
9. External magnetic key test point for simulation
9. IP-65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

## Applications

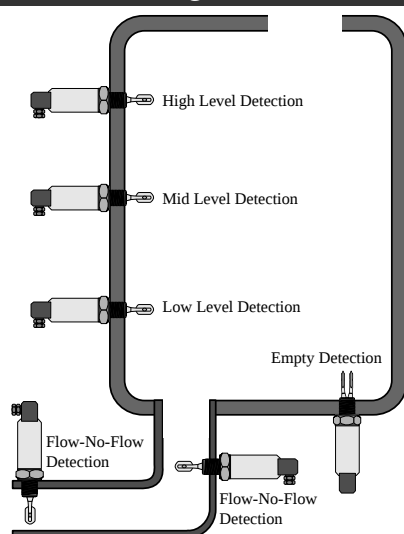
Vibrating fork level limit switch used as a full, empty and demand alarm in fluid containers, tanks containing liquids of various types, including milk & milk products, edible oil, fuel oil, lube oil, brewery, pharmaceutical fluids etc.

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	less than 4mA to release external relay maximum 150mA to magnetize relay Use relays/contactors will less 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 ... 60°C (-4°F ... 140°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	IP65 as per IS-13947
----------------------------	----------------------

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