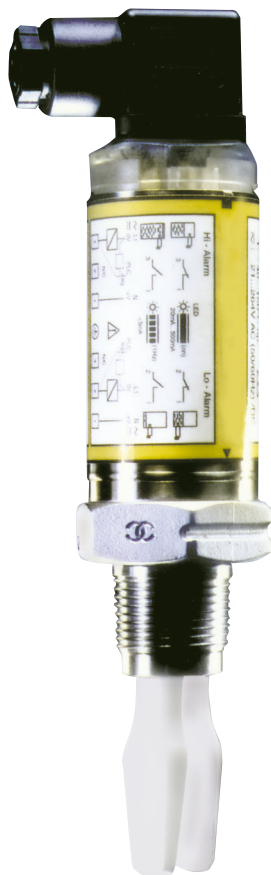




FV-02

Miniature Tuning Fork Limit Switch



- 3/4" or 1" thread
- High operating frequency
- 24 to 240V DC or AC voltage
- Least depth for mounting
- Diagnostic LED

Description:

The FV-02 vibrates in the air according to the principle of a tuning fork at the frequency of resonance. When the switch is dipped into a fluid the frequency changes due to the higher inertia of the medium. The integrated electronic components capture this change and link to a load connected in series. For the first time, we succeeded in shortening the sensor element that is contacted by the media to 50 mm length and in keeping its size so narrow that a 3/4" thread is absolutely adequate. The same device can be operated with supply voltages of 24 to 240 V AC or DC, thereby reducing the storage of spare parts to a minimum. The device is provided with a microprocessor that is capable of self-monitoring and fail-safe functions. It triggers a user-defined alarm that indicates a dry-run or wet status through an LED which changes from continuous light to blinking and, in the event of malfunctioning, changes again its frequency.

Range of application:

The FV-02 series of limit switches is intended for recording limit levels in most of the fluids and slurries. The device can process also media with high viscosities or sticky properties without any problem since it is capable of „shaking away“ adhesions by virtue of its function. Irrespective of whether for overflow protection, pump protection, leakage monitoring or pump control, the FV-02 is universally applicable and, due to its small dimensions, it can be mounted even in narrow spaces. The switch has a fully stainless steel facing to the media and can be connected with an R3/4" or R1" thread to the process. Optionally, a fitting is available for applications in food-processing industry which enables, together with the 1" variant and an O ring, a smooth joint to the fluid.

Versions:

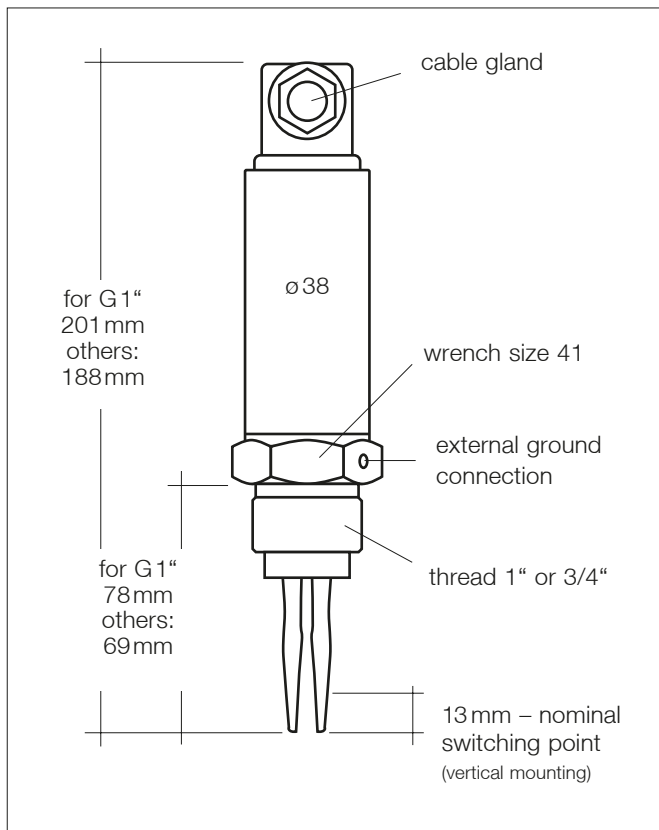
FV-02 Miniature Tuning Fork

Electrical Function:

The 2-wire system is connected with a two core cable in series with the load and achieves direct load switching. The 3-wire variant has been developed to be interfaced directly to a PLC using a PNP transistor output.

Process connection:

R3/4"-, R1", NPT 3/4" and G1" male threads connections are available. The G1" male thread variant can be used for applications in food-processing, beverage and pharmaceutical industries to achieve a smooth joint by means of a welding stud.



Ordering codes:

Ordering number: **FV-02. 1. 0**

FV-02 Miniature Tuning Fork

Electrical function:

1 = 2-wires on load in series
2 = PNP 3-wire for PLC operation

Process connection:

1 = R 3/4" male thread DIN2999
2 = NPT 3/4" male thread
3 = R 1" male thread DIN2999
4 = G 1" male thread
5 = G 1" male thread with hygiene fitting

Electrical specifications:

Supply voltage: 2-wire: 24 to 240 V
(±10%) DC or AC
3-wire: 18 to 60 VDC

Leakage current (without load): < 3.0 mA continuous (2-wire)

max. Load: 500 mA

max. Peak load: 5 A for 40 ms max.

min. Switching load: 20 mA continuous (2-wire)

Voltage drop

2-wire: 6.5 V at 24 VDC,
5.0 V at 240 VAC

Voltage drop

3-wire PNP: < 3.0 V

Type of

electrical protection: protection against polarity reversal and short-circuiting, protection when load is absent

Electrical connection: square plug as per DIN 43650

Cable diameter: 4 mm to 9 mm (PG9)

Protection class: IP66/IP67 EN60529

Technical specifications:

Pressure range: -0.25 bar to +100 bar at 50°C

Temperature range.: -40°C to +150°C

Ambient temperature: -40°C to 80°C (50°C at 150°C on the wet side)

CIP cleaning: withstands steam cleaning routines up to 150°C

Medium:

Specific weight: 0.6 to 2.0 g/cm³

Viscosity: 0.2 to 10000 cP

Switching point (water): approx. 13 mm immersion depth

Hysteresis (water): ± 1mm nominal

Switching delay: 1 sec.

Housing: stainless steel 304

Fork: stainless steel 316

LED window: anti-flammable polycarbonate

Plug: polyamide, fiberglass reinforced

Plug sealing: nitrile butadien rubber

Function test: through magnetic test point during operation