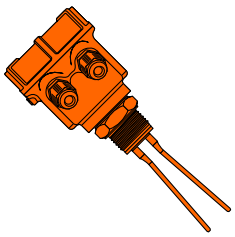


LSV...

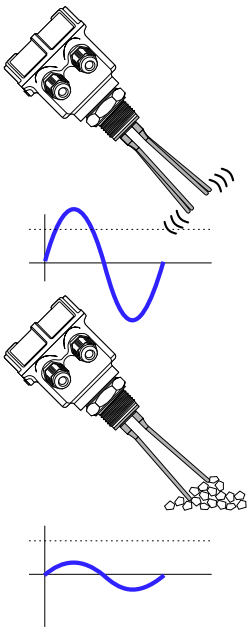
Technical Specification Document

Vibrating Fork Point Level Switch for Solids & Powders

Approvals & Certifications:

Trumen
sensing matters

Operating Principle



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

Amplitudes of vibration are above threshold when tines are free to vibrate.

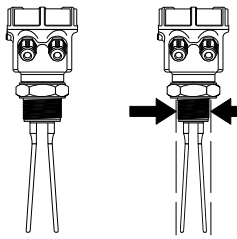
When material touches fork tines, vibration stops as resonance gets disturbed.

Amplitudes of vibration, as seen by electronics falls below the threshold-strength,
material presence is thus detected.

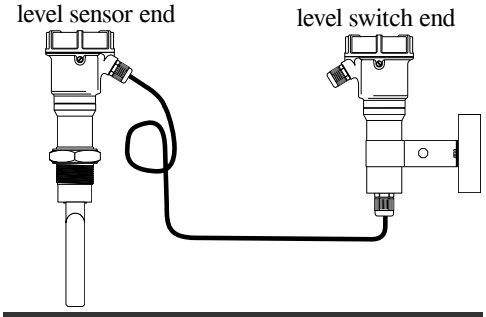
Fast Switching Response

0.8 second on Request
1.5 second on Request
2.0 second as Standard

Compact Process Connection



Remote Electronics



Compact Size

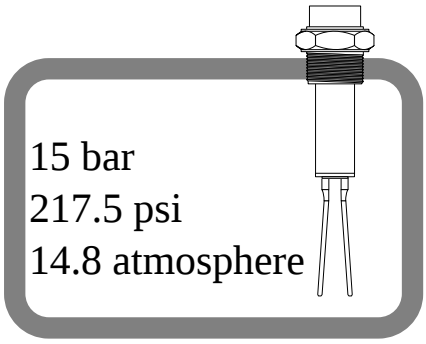
Durable Construction

Immune to External Vibrations

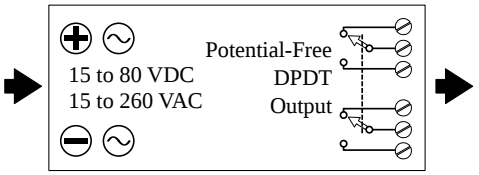
No Calibration Required

Easy Installation

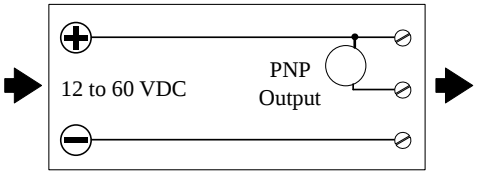
High Pressure Resistant Forks



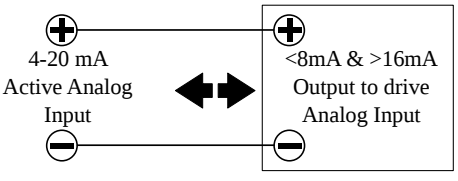
Universal In DPDT Output



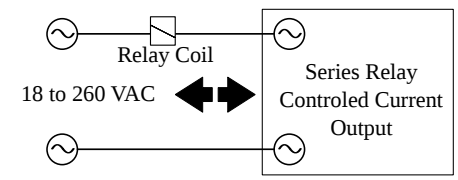
PNP-NPN with DC Supply



Two wire 8/16 mA Signal



Two-wire AC with Series Relay



Order Code

LSV	Vibrating Fork Level Switch for Solids & Powders
Hxx	Enclosure: HAN: Aluminum Non-Hazardous IP-66/68, HAX: Aluminum Flameproof IIa, IIb and IIc, HSN: Stainless steel, HPN: Polycarbonate (Plastic), HES: Specially designed custom enclosure
Tx	Material Temperature (T1: max 80°C, T2: max 200°C, TS: Customer specified - Special designed)
Sx	Sensing Surface Material (S6:SS-316, SL, SS-316L, ST: PTFE coated, SF: PFA coated, SS: Special surface)
Gx	Sensor Extension Material (G0: none, G4: SS-304, G6: SS-316, GL: SS-316-L, GT: PTFE coated, GF: PFA coated, GS: Special surface)
Px	Process Connection Type (PFL: Flanged Type – description of flange - FL -at the end of order code) (PB1: BSP 1", PB2: BSP 1 ½", PB4: BSP 1 ¼", PB5: BSP 2") (PN1: NPT 1", PN2: NPT 1 ½", PN4: NPT 1 ¼", PN5: NPT 2") (PT1: Triclover/Triclamp 1½", PT2: Triclover/Triclamp 2")(PCS: Special Process Connection)
Cx	Process Connection Material: (C4: SS-304, C6: SS-316, CL: SS-316L, CT: PTFE coated, CF: PFA coated, CS: Special material)
	Electronic Power Supply and Outputs:-
EIUD	Integral Electronics with Universal supply (15-80V DC & 15-260V AC) & 1 DPDT potential-free relay output
EIDP	Integral Electronics with DC power supply (12-80V DC) & one short circuit safe PNP output
EIDL	Integral Electronics with Two wire DC supply with 8/16mA current output suitable for 4-20mA analog inputs
EIAR	Integral Electronics with Two wire AC supply for external series relay (>5mA holding current)
EIFS	Integral Electronics specially designed with special output
ERUD	Remote electronics IP 68 wall/pipe mounted with universal power supply (15-80V DC & 15-260V AC) & 1 DPDT potential-free relay output, using 10 meter special interconnection cable for driving sensor
ERFS	Specially Designed Remote Electronics
D1	Fork Length: 150mm (low density medium, slower response)
D2	Fork Length: 125mm (higher density medium, faster response)
D3	Fork Length: 100mm (higher density medium, fastest response)
Lxxxx	Insertion length (125mm to 3000mm)
FLxx	Flange type and bore size specified for ASA/ANSI/JIS/DIN/Custom

LSV: Vibrating Fork Level Switch for Solids & Powders

Features

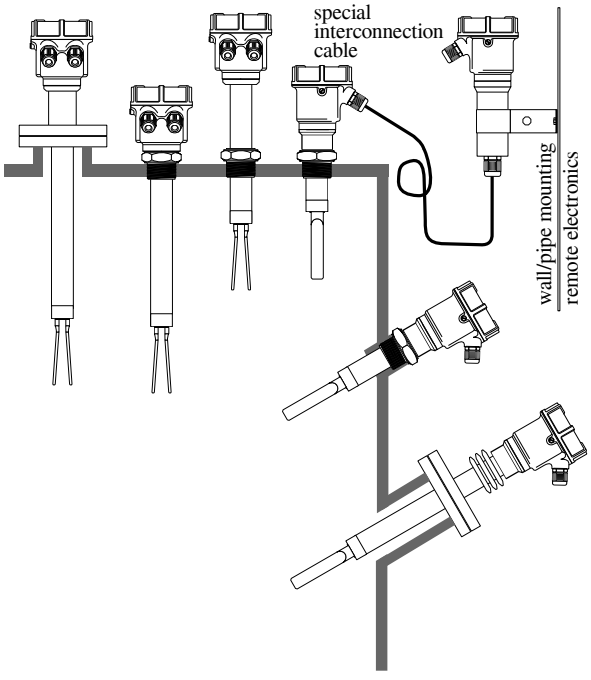
1. Fast Switching Response 2 sec
   (0.8 sec and 1.5 sec available on demand)
2. 1" threaded mountings available
3. High pressure 15 bar forks
4. High Tempreture up-to 250 °C available
5. Calibration-less operation
6. Remote electronics with std 10 meters cable length
7. Tropicalized & potted electronics module
8. Threaded & Flanged Mountings
9. Electronic Inserts support all requirements
10. Ingress protection : IP 68/66 (as per IS-13947)
11. Ex-proof (Ex d T6 IP-66 IIC)
    - Flameproof as per IS/IEC 60079-1:2007
    - Weatherproof (IP-66) as per IS/IEC 60529:2001
    - Suitable for Gas Group : IIC
    - Suitable for Zone 1 & 2 atmospheres

Applications

Vibrating fork level limit switch used as a full, empty and demand alarm in containers, hoppers, silos containing bulks and powders of various types.

Typical applications: cereals, beans, edible oil process, sugar, animal feed, rice plants, detergents, dye powder, chalk, gypsum, fly-ash, cement, sand, plastic granules, spices, milk powder etc.

Typical Mountings



Specifications

EIUD	Integral Electronics
Supply & Output	Universal Power Supply, DPDT Relay Output 15 to 80 VDC and 15 to 260 VAC 50/60Hz
Relay Type and Rating	Potential Free DPDT Relay Output 5 A each @ 24VDC or 220VAC
EIDP	Integral Electronics for PNP Output
Supply & Output	12 to 60 VDC, PNP
Output Limit	250mA max. Short Circuit Safe.
EIAR	Integral Electronics AC series relay
Supply & Output	Two Wire 18 to 260 VAC, Series Relay less than 4mA to release external relay maximum 150mA to magnetize relay
Output Limit	Use relays/contactors will less than 4mA holding current
EIDL	Integral Electronics 4-20mA Loop Powered
Supply & Output	Two Wire DC 8 / 16 mA 12 to 60 VDC
Output Limit	8mA (-1mA max) / 16mA (+1mA max)
ERUD	Remote Electronics
Supply & Output	Universal Supply DPDT relay output 15 to 80 VDC 15 to 260 VAC 50/60Hz
Relay Type and Rating	5 A each @ 24VDC or 220VAC
Sensor Cable	Remote electronics require special cable from fork to controller. 10 meter standard length more available on demand
Min. Density	>=500 gram/liter (0.5 gm/cm3)
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 ... 200°C (-22°F ... 392 °F) {250°C available on request} (extensions & heat sinks required)
Process Pressure	absolute / max. 15 bar
Wetted Parts	SS 316 or SS 316L
Mountings	NPT / BSP 1", 1¼", 1½", 2" etc Flanged : ANSI/JIS/DIN/ASA/custom
Extensions Tube Material & Length	SS 304, SS 316, SS 316L 125mm to 3,000mm

Specifications are subject to change without prior notice

Trumen
sensing matters

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