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INSTRUCTION & MAINTENANCE MANUAL
FOR

VIBRATING FORK POINT LEVEL SWITCH ' VFS '.

(Document No. : MAN / VFS / 00 / Rev. OO / 01 - 2005.)

We are glad to know that you are using a reliable ' TECHTROL PRODUCT ' for proper and safe functioning of the same we suggest you to go through our ' INSTRUCTION & MAINTENANCE MANUAL ' carefully before installing our instrument.

Measuring System :

The system consists of the following,

The Vibration Switch and
The Electronic Switching Unit.

Application :

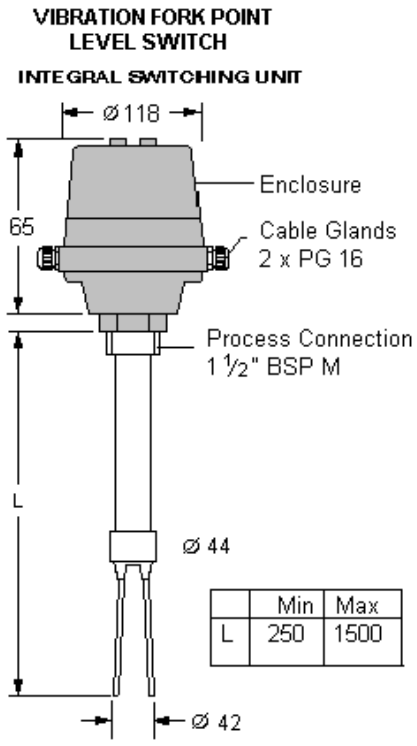
Building industry materials, cement, sand, lime, etc. Foodstuff industry, milk powder, flour, salt, food grains, etc. Plastic Industry, powder granular, etc. Timber industry, chemical and mining etc.

Typical services :

Level detection / Alarms / feeder control.

Function :

The electronically stimulated Fork vibrates at its mechanical resonance frequency of approx. 125Hz. If the bulk material covers the fork, the damping of the vibrations is detected electronically anda corresponding signal is actuated. The vibration of the fork has self cleaning properties. The lightdeposit on the container wall does not affect the working of the instrument.



	Min	Max
L	250	1500

Technical Specifications :

CONTROL UNIT

Enclosure / Housing	Cast Aluminium, Weather Proof, Powder coated. Integral with the Fork / suitable for back panel mounting.
Cable Entry	2 / 3 Nos.
Ambient Temperature	0 to + 60^{O}C.
Power Consumption	1.9 VA
Mains Voltage	230 V AC (± 15%), 50 Hz. 110 V AC (± 15%), 50 Hz.
Output	2 Sets of potential free c/o contacts rated at 5 amps. 230 V AC for non - inductive loads.
Signal Delay	Fork covered to Fork free about 2 to 3 sec. Fork free to Fork covered about 2 sec.
Switching delay	Continuously adjustable from 2 to 20 sec. Fork free and Fork covered.
Safety Operation (FSL / FSH)	Field selected switch over for minimum or maximum switching points.
Switch status display	GREEN LED shows Normal and RED LED shows Alarm Conditions.

SENSING PROBE (FORK)

Mounting	Screwed : 1½ " BSP (Standard) Flanged : As per requirement.
Fork	Stainless steel 316.
Operating Temperature	150OC max (Inside Vessel) 200OC max (Inside Vessel temp. on request)
Probe Length	250 mm.

Installation :

The standard unit has screwed mounting, which can be mounted laterally on the container wall at the desired level of the material to be controlled. The Fork tines should be horizontal or pointing slightly downward.

Following precautions should be taken during installation.

The tines should not be bent or position distorted.

During filling operation, the material should not fall directly on the tines. Other wise protection shield should be provided over the tines.

During installation of probe with screwed mounting, turn the hexagonal mounting nut of the probe and not the housing.

For side mounting location the tines position should be such that the material can flow freely through them.

The knife - edges of the tines should face the ground plane in the horizontal mounting position.

The tines should extend far enough into the vessel so that they are free to vibrate despite the build - up on the vessel wall. The extended probe should be mounted in such a way that it does not extend further than necessary in the vessel.

Turbulance during pneumatic conveying can cause operational problems and can be avoided by shielding the tines by windscreen.

For remote mounting of the Electronics Switching unit, the probe connection cable gland of the Cast Aluminium housing of the Switching unit should point towards ground plane.

FAIL SAFE MODE SELECTION :

Depending upon the process requirement, the minimum or maximum fail - safe mode can be selected in the Vibration Switch.

In Vibration Switch the Relay is in energised condition. When level changes state the relay de - energizes. Thus, besides level alarm condition, the operator gets an alarm even in case of mains failure or the instrument failure. This imparts a better overall reliability of operation.

Maximum fail safe mode means the relay de - energizes when the level exceeds the desired or when mains supply fails.
Minimum fail safe mode means the relay de - energizes when the level drops below the desired level or when mains supply fails.

NOTE : The contacts shown on the Logic Card Panel are for Fail Safe Low Mode. The contacts would change when Fail Safe Mode is changed.

Electrical connection to Vibration Switch :

Please refer the connection diagram for the electrical connection. Appropriate Mains Voltage should be connected to the terminals of the instrumenrt as specified. The connectors are suitable for 1.5 mm^2 cable cross section.

The Vibration Switch does not need any calibration / setting. The switching delay can be set as per the process requirement, between 2 secs. And 20 secs.

Maintenance :

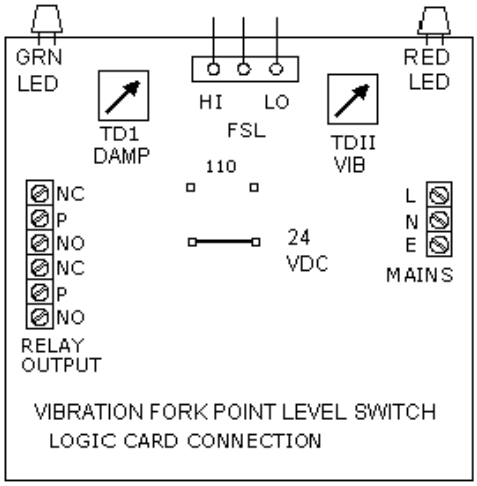
The Vibration Switch needs no maintenance. However if the material has built up tendency; over a period of time tines should be cleaned whenever need occures.

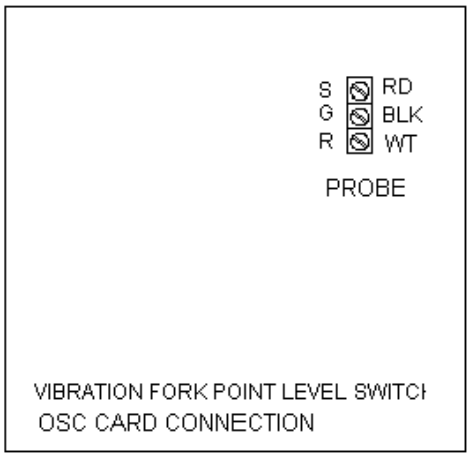
Ensure that the cable glands and housing lid are sealed to prevent ingress of moisture.

Trouble Shooting :

If the instrument fails, please observe following points.
Check the mains supply connection. Is it connected as per specification ?
Check F S H and F S L mode. Is the mode selected as per the required logic ?

CONNECTION DRAWING :





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