KANAGAWA INSTRUMENTS

Vibrating Fork Level Switch

Model:KVLS



Features

- 20-250VAC/VDC universal power supply
- Solid-state or relay output
- Compact or standard units
- No calibration required
- Explosion proof units available
- Mini, standard and extended probe versions

Application

- High, low and intermediate level indication in tanks
- Tank fill/empty control
- PLC/DCS level sensing input
- Level detection in plastic or metallic tanks
- Compact and small tanks and surroundings

The vibrating fork type level switch working principle is simple and effective. This makes vibrating fork type level switches (a.k.a. tuning fork type level switches) reliable, cost effective and very popular for use in detecting the presence or absence of liquids and bulk solid materials. The vibrating fork type level switch working principle is based upon detecting the change in harmonic vibration frequency of the sensing element as a result of the presence of the target media.

The vibrating fork type level switch working principle uses a tuning fork shaped sensing element with two tines inserted into the bin or tank where the target media will be present. The tuning fork sensing element is placed into vibration at its natural resonant frequency by establishing motion in the sensing element or fork. In most the most common embodiment of the vibrating fork type level switch working principle the harmonic vibration of tuning fork sensing element is established using Piezoelectricity.

Settings

1. Zero setting:

Set the liquid level to the desired zero position (such as the state of an empty tank), wait for the liquid level/material level to stabilize for 10-20 seconds, press the zero button (ZERO) for more than 3 seconds, the green light-emitting tube will flash, release the button, the zero position is set.

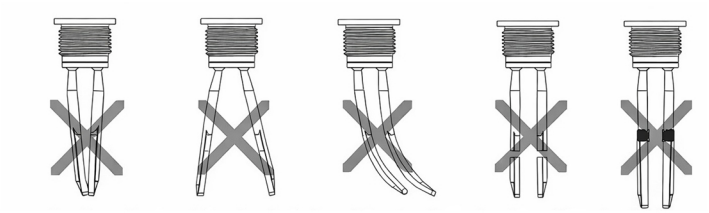
2. Full scale setting (alarm point setting):

When the liquid level/material level reaches the alarm point that needs to be set, wait for 10-20 seconds to stabilize, press the range button (FULL) for more than 3 seconds, wait for the green light-emitting tube to flash, release the button, and the full alarm point is set.
Note: Zero point and span setting are not in sequence and do not affect each other. If the settings are wrong and the instrument does not work normally, you can reset it by restoring the factory settings. Method: After power off, keep pressing the FULL button and power on again. After the green indicator light (StateLED) goes out, release the button, and the factory settings are restored.

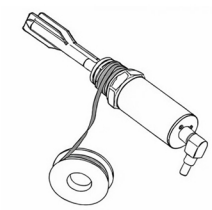
Delay time setting

The setting value of the delay time is 0~60 seconds. In the measurement state, press the ZERO button and the FULL button at the same time. After the green indicator light (StateLED) is off, short press the ZERO button, the green indicator light (StateLED) flashes, press the button The number of times to determine the length of the delay, short press the ZERO key can be set sequentially. Press the ZERO key and FULL key at the same time, the system will save the data and exit the setting.

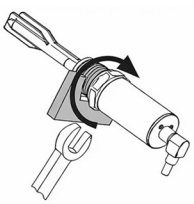
Short press the ZERO key times	Times the green indicator light (StateLED) flashes	Delay time
1	1 flash	0 sec
2	2 flashes	5 secs
3	3 flashes	15 secs
4	4 flashes	30 secs
5	5 flashes	60 secs
End	Back to normal state	



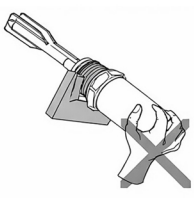
Do Not: Broken Vibrating Rods; Bent Vibrating Rods; Cut Short Vibrating Rod, Add Length to Vibrating Rod



Use PTFE tape seal



Use wrench to tighten

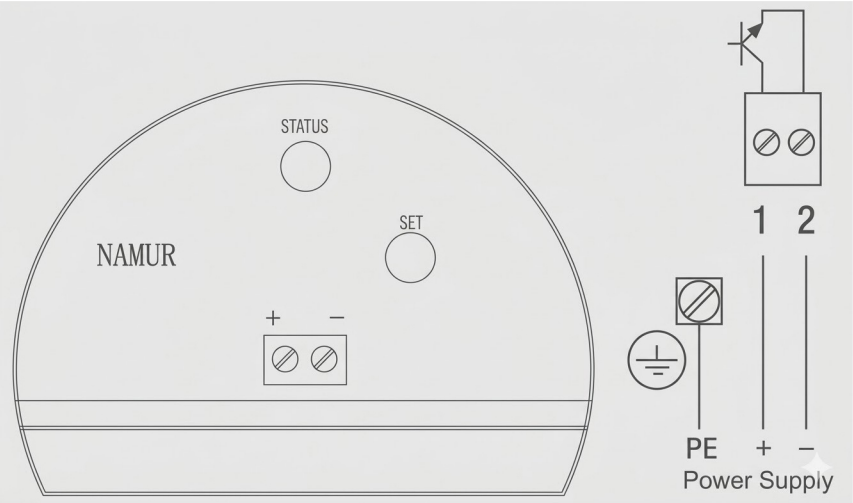


Do not hand tighten

Technical Parameters

Power supply	19…60VDC 19…250VAC 50/60Hz
Switching time	In the medium 2 seconds, Empty: 3 seconds
Environment Temp.	-40…+70°C
Shelf Temp.	-40…+85°C
Medium Temp.	-40…+150°C/250°C
Working Temp.	-1…+40bar
Medium type	Powder and particle =10mm， density>8 g/l
	Liquid， Viscosity =10000mm²/s, density >0.7g/cm³
Process connect	G1-1/2"
Electric connect	M12×P1.0 Connector
Shell Material	SS304
Fork material	SS304/SS316
Output	Relay, AC250V/4A, DC60V/4A
	NPN, 400mA
	PNP, 400mA
Power consumption	DC<3W, AC <15W

NAMUR



Power Supply Voltage: 8 VDC
Signal Output: 8/16mA
POWER: Green indicator light; STATE: Red indicator light during output.

SET: Self-test function to overcome vibration absorption caused by installation on the barrel wall, prevent noise interference, and avoid false alarms.

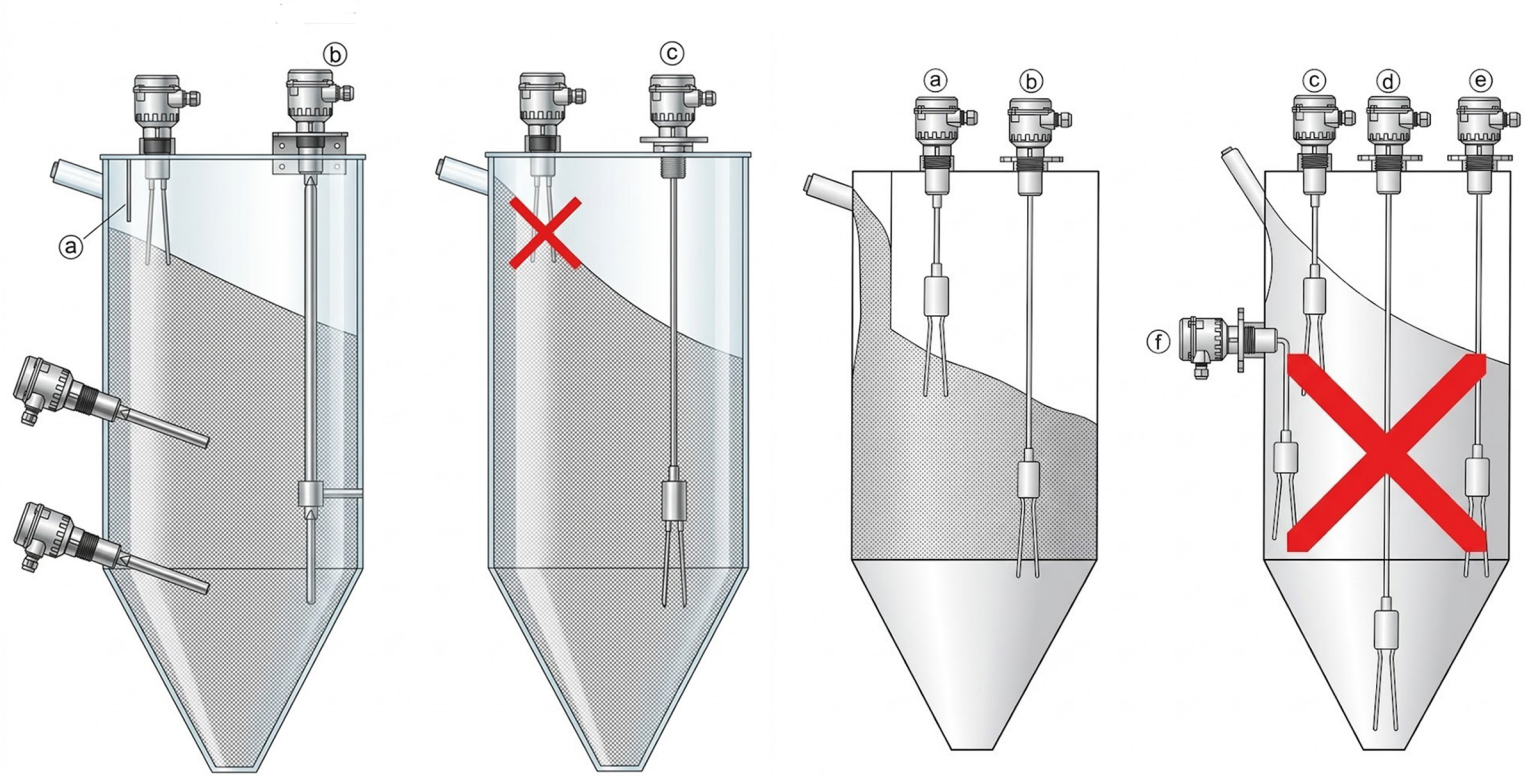
Perform a functional test while the instrument is powered on. With the tuning fork not in contact with the material, press and hold the SET button. Release the button when the red and green indicator lights flash alternately. The self-test is successful when the instrument lights stop flashing.

The sensitivity is set to the highest by factory and is suitable for environments where the tested material is relatively stable. If the surface of the tested material fluctuates significantly, the sensitivity needs to be lowered to prevent false alarms. When installing the tuning fork, please avoid locations with significant vibration to prevent false alarms. If this cannot be avoided, please perform a self-test at the installation location.

Notice:

- Default density is set for water: 1g/cm³, If the target medium density ≥ 1g/cm³, Self-Checking is not necessary. Self-Checking is necessary when the target medium density < 1g/cm³.
- Default Sensitivity is the highest, for material that have irregular surface and fluctuate, please set lower Sensitivity.
- Avoid to install in the position that vibrate drastically.

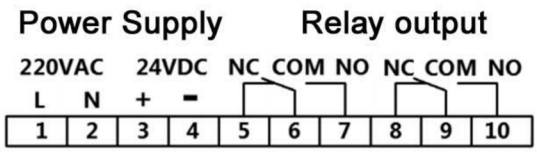
Installation



Model Selection Guide

KVLS	-XXX	-X	-XX	-XX	-XXX
	100: fork L=100 045: fork L=45 010: mini type	**Output** A: 18-30VDC Relay B: 85-240VAC Relay C: 24VDC NPN D: 24VDC PNP N: 8/16 mA NAMUR	G1: G1/2” G2: G3/4” G3: G1” P1: 1/2”PT P2: 3/4”PT P3: 1”PT N1: 1/2”NPT N2: 3/4”NPT N3: 1”NPT C1: Clamp 50.5 F1: 1”25A Flange F2: 1-1/2”40A Flange F3: 2”50A Flange	**Temperature** NT: 0-100°C HT: 100-180°C HHT: 300°C	**Extension** tube Length
Exd II BT4					

Terminal





Installation

