Tuning Fork Material/Liquid Level Switches

Operating Instructions

Before operating this unit, please read these instructions completely.

I. Product Overview

The tuning fork level switch is a new type of level switch, which is excited by a crystal to generate vibration. And when the end of the fork body is submerged by liquid, the vibration frequency changes, so that this change is detected by the electronic circuit and a switching quantity is output, thus realizing the alarm and control of the liquid level of the upper and lower limits. Tuning fork level switches are called "electrical floats" and are used wherever float level switches are used and where float level switches cannot be used due to scaling, turbulence, agitation, bubbles, etc. Since there are no moving parts in tuning fork level switches, there is no need for maintenance and adjustment, which can be an upgraded product of float level switches. This series of products are available in general, intrinsically safe and explosion-proof types, and are suitable for use in different environments.

II.Characteristics

Highly adaptive: The different electrical parameters of the measured liquid have no effect on the measurement, and harsh conditions such as scaling, turbulence, agitation, bubbles, medium viscosity, high pressure, etc. have no effect on the test.

Maintenance-free: There is no moving parts, and easy to use and can be durable.There is no need to adjust: It will not be affected by the electrical parameters of the measured medium, and there is no need to adjust in normal situation. Power-down data preservation: There is high and low level of power failure protection, and it is safe and reliable.

III.Main Technical Indicators

Power supply: DC 24VDC; AC 220VAC, 50/60Hz Operating temperature: -20～200℃.

Output mode: DPDT relay contact output, RS485 communication (optional) Contact capacity: 220VAC 5A

Explosion-proof grade: Intrinsically safe: ExiaIICT4-CT6

Explosion-proof type: ExdIICT4-CT6

IV.Applicable Materials

Powder

- Milk powder
- Flours
- Stearic
- Frozen taro chips
- Cast sand
- Powdered fiber
- Legumes
- Flavoring
- Glass Silica Powder
- Sugar
- Animal food
- Plastic granules
- Sugar products
- Granola
- Sand and gravel
- Coffee beans
- Peanuts
- Clay powder
- Coffee powder
- Paddy/rice
- Polystyrene raw material powder
- Freeze-dried coffee
- Tobacco
- Soda
- Tea
- Wood chips
- Coal ash

- Salt
- Chalk

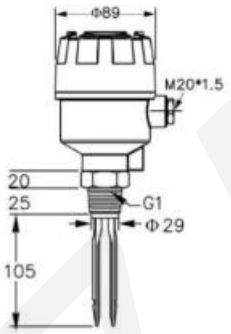
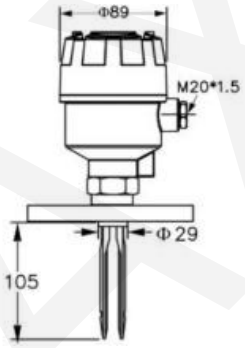
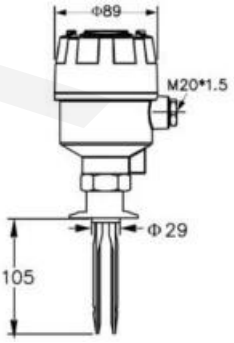
Liquid

- Water
- Solvents
- Soya sauce
- Heavy oil
- Petroleum
- Gasoline
- Ink
- Cream
- Beverages
- Strong acids
- Strong alkalis
- Other corrosive fluids

V. Scope of Application

It is suitable for high and low level detection of various materials/liquid media in the irrigation or pipeline, and is widely used in liquid level control in the raw materials/processes/products of barrels and tanks in the industries such as fiber industry, rubber industry, tire industry, cement industry, iron and steel industry, food factory, pharmaceutical factory, petrochemical factory, feed factory, and other industries.

standard type

Dimensional drawing (unit: mm)			
Model type	thread of screw type	flange type	Sanitary joint type
Junction box material protection grade	Aluminum alloy baking paint/IP65		
Tuning fork body material	SUS304/316/316L	SUS304/316 covered TEFLON	SUS304/316/316L
Ongoing specifications	G1” thread of screw G1"thread	Flange Minimum 1”	50.5 sanitary joints
Electrical inlet	M20*1.5		
Maximum vertical force on tuning fork body	177in.Lbs（20Nm）		
Process Pressure	vacuums～600PSI（40BAR）		
Power Supply	110/220Vac，50/60Hz		
Power Consumption	5W		
Environment Temperature	-40℃～85℃		

Process Temperature	Regular -40℃～85℃/High temperature MAX200℃/Special specification 260℃.
Output contact	Relay，DPDT，5A/250Vac/28Vdc， 1 or 2 sets
Minimum inductive density of fork bar material	Powder: ≥0.07g/cm3; Liquid: ≥0.7g/cm3; Viscosity: 1～10000cSt
Action delay	0.6 sec action; 1 to 3 sec-recovery
Vibration frequency	350～370Hz
High/Low Failure Protection	High, low
Sensitivity	High, low
Length	Regular 100-1500mm, (except for extended split)

VI. Standard Instrument Debugging

The instrument has been debugged for full performance before shipment, but after long distance transportation or long-term inventory, some major performance checks are still required before delivery for use.

1.Zero point setting:

Set the liquid level to the zero position you want to set (for example, empty tank state), wait for 10-20 seconds after the liquid/feeding level is stabilized, then press the ZERO button (ZERO) for more than 3 seconds, the green light-emitting tube blinks, then release the button, the zero level is set.

2.Fullness setting (alarm point setting):

When the liquid level/feeding level reaches the alarm point to be set, wait for 10-20 seconds to stabilize, press the FULL button for more than 3 seconds, wait for the green light-emitting diode to flash, release the button, and the fullness alarm point is set. Note: Zero and fullness settings are not in any order and do not affect each other. If the wrong setting causes the meter to work abnormally, it can be repaired by restoring the factory settings, method: after power failure, keep holding down the FULL button to re-power up, wait for the green LED (StateLED) to go off, release the button, and the restoration of the factory settings is completed.

VII. Menu Settings

1.Delay time setting

The setting value of delay time is 0~60 seconds, in the measurement state, press ZERO key and FULL key at the same time, after the green indicator light (StateLED) is off, short press ZERO key, the green indicator light (StateLED) will blink, and the length of the delay time will be decided according to the number of times of blinking, and the short press of ZERO key can be set order.

Number of short presses of the ZERO	Green LED (StateLED) flashing times	Delay time
Short press 1 time	Blink 1 time	Delay 0 seconds
Short press 2 times	Blink 2 time	Delay 5 seconds
Short press 3 times	Blink 3 time	Delay 15 seconds
Short press 4 times	Blink 4 time	Delay 30 seconds
Short press 5 times	Blink 5 time	Delay 60 seconds
End	Return to normal test status	

For example: If you need to set 15 seconds delay time, firstly, in the normal test state, press ZERO key and FULL key at the same time, the green indicator light (StateLED) is always on, then short press ZERO key 3 times, the green indicator light (StateLED) will respond to blinking 3 times, at this time, you can press ZERO key and FULL key at the same time, the system will save the data and exit the setting.

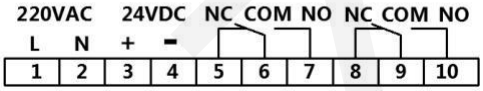
2.High and low alarm point setting:

In the measurement state, press ZERO key and FULL key at the same time, after the green indicator light (StateLED) is always off, short press FULL key, the relay and the red indicator light of AlarmLED will be flipped (if you set the delay time, wait for the delay time and then flip). After setting, press ZERO key and FULL key at the same time, the system will save the data and exit the setting.

VIII. Wiring Terminal Diagram

Relay output

Power Input Relay Output



Note: Relays are DPDT type. One relay, one same coil, two separate sets of output contacts.

IX. Ordering Precautions.

1.Confirm the voltage

2.Confirm the installation method (side or top installation).

3. Confirm the specific gravity of raw materials

4.Confirm whether there is a bridge breaker or vibration motor installed on the barrel wall.

※The total length of the product is affected by the function adjustment, and the permitted tolerance is ± 5mm.

Product characteristics, specifications and dimensions are subject to change without notice. For more detailed information, please contact us or your nearest agent.