RF Level Switch

Operation Manual

1. Features

■ Strong universality: applications including fly ash, particles, powder, liquid, viscous, conductive and non-conductive materials.

■ Anti-sticking circuit: it adopts anti-sticking electronic circuit which could help to avoid the false echo generated by material adhesion.

■ Probe detachable: probe and controller could be separated, no cable connection, install and dismantle will not affect the feeding of materials.

■ SMT technology: improves the vibration resistance ability of electronic circuit and makes it more stable and reliable.

■ Pressure resistance: improves the application pressure of probe.

■ Temperature resistance: the probe can works at temperature between -40C and 200C， and it also has ceramic probe available for high temperature over 800C.

2. Technical parameters

Relay capacity:

DPDT, rated at 5A

Delay:

0~30 "seconds continuously adjustable

Power supply:

220VAC or 24VDC

Power:

3W

Sensitivity:

0.3pF~800pF

Material temperature:

-40 ℃ to 200 ℃ (high-temperature ceramic probes can be used for temperatures above 200 ℃)

Circuit temperature resistance:

-40 ℃ to 80 ℃

Installation thread:

G3/4, G1 or G11/2

Probe materials:

stainless steel, reinforced nylon, polytetrafluoroethylene

Liquid receiving medium:

stainless steel or polytetrafluoroethylene

Electrical interface:

M20X1.5

3. Electrical connection

Be sure to pay attention to the power supply indicated on the instrument panel, if the power supply is 220V AC wiring connection, live line is L, null line is N, earth line is G (non-metal

container should be grounded) ; if power supply is 24V DC, the wires are not defined, no distinguish of positive and negative, earth line is G, (terminals wiring diagram refer to instruction below).

After wiring finished, fasten the cable gland (in order to prevent the dust and steam enter into the housing). Note: make sure correct wiring without any mistake, otherwise it will damage the instrument.

b. Switching value output connection

The contact of relay output is type C, 2 groups of single pole and double throw, 5A 220V AC (impedance). Light low inductance load for solenoid valve alarm, heavy load must be driven by intermediate relay.

4. Debugging operation

When the instrument leaves the factory, the sensitivity debugging has been done completed, in general, it can be used directly without any further adjustment. Unless the need for appropriate sensitivity or encounter the situation when there is no material after instrument installed, the red light turns on.

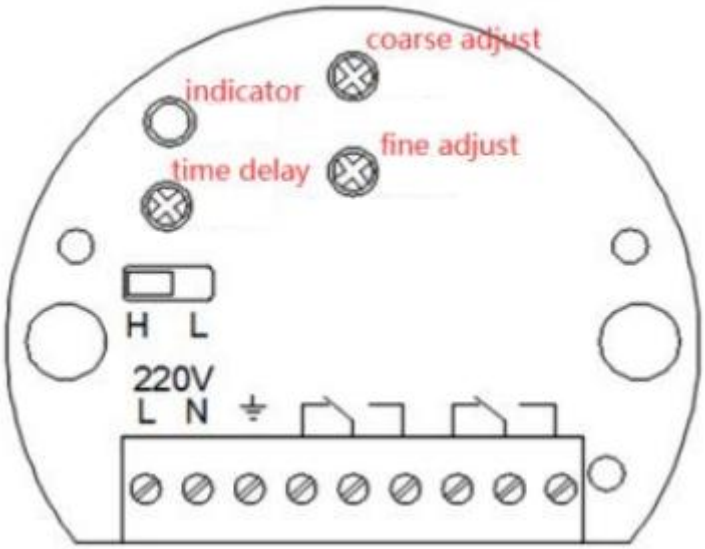
a. adjustment of sensitivity

Turn the fine adjust potentiometer to the min side when there is no materials, and then turn the coarse adjust potentiometer to the position till the indication light turns red, then turn the coarse adjust potentiometer by reverse direction till the indication light turns green; turn the fine adjust potentiometer to the position till the indication light turns red, then reverse direction to the light turns green, at this time, the sensitivity is the highest. If no need such high sensitivity, you can rotate the fine adjust a certain angle along the direction from read light to green.

When the sensitivity adjustment is done, the light turns red, it means there is some material exist on the probe, when light is green means there is nothing.

In order to make sure the device will work stably, should keep prestart for 5 minutes, the

adjust position and indication refers to below diagram:



1. For an empty container, if the indicator is red light, rotate the fine adjust button counterclockwise till it turns into green, and then continue rotate for 30° counterclockwise, instrument will be ok to use then. If any problem during adjust, please contact with us.

2. For instrument which hasn't been installed and need to test it to see whether it is ok to work, just use your hand to handle it at the process connection position, use another hand try to reach to the prove slowly, to simulate the material contacting, till the indicator turns into red, it will output the alarm signal, if sensitivity is highest, even without touch the probe, the reply will work also once it detects the hand. Except the adhesive materials, we don't suggest the highest level of sensitivity in order to avoid false output. So the configuration of instrument when out of factory will be set at signal output when material touches the probe.

3. During the actual use, it will lead mistake signal if there is too much dust on probe or adjustment is not suitable. At this time, you need to readjust the sensor, no need to clean the probe, it will be ok for use continuously.

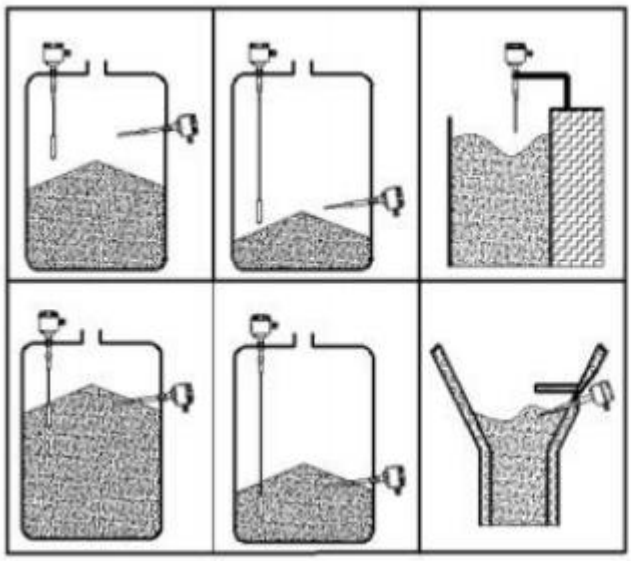
b. Time delay

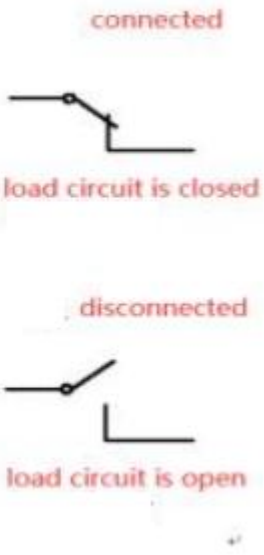
The instrument has function of time delay with 0-30 seconds, there is on/off button for this mode. (refer to the diagram). At the beginning the time delay setup is 0 second (factory will set 0 when deliver), rotate it by clockwise direction will increase the time; when use time delay to eliminate the liquid fluctuation and rely vibration, you only need to rotate a very small angle, time delay will lead oscillation above or below the process level control point, but the average level is equal to the control point, over and under quantities are related to the delay ratio.

c. Statement of relay status

Status of relay: light of relay is red ------- there is material
light of relay is green------there is no material
if the power fails, the relay is released, indicating there is no material.

d. Installation methods
The installation has horizontal and vertical ways.





5. Notes

1. When select the instrument, if want to measure corrosive liquid, it need add PTFE insulation coat in order to protect the probe and instrument.

2. When installed on side of tank, should consider the material adhesion on tank wall, probe should be placed slant to bottom and make sure the shielded electrode (non-reaction area, shield part) will be able to come out from adhesion part.

3. When it is used for solid materials at the bottom alarming, make sure will take good measures for anti-collision on top of instrument, in order to avoid the crush of material damage the instrument.

4. The installation position should choose where is stable inside of tank, keep distance from motor, frequency converter, make sure there is nothing under the probe including the barriers, beams, ladders, floating roof; keep far away from feeding and stirrer, and must make sure no contact with feeding flow.

5. If installed in the explosion proof area, the instrument must follow the national regulations of explosion proof areas. Explosion prooftype instruments can be installed in the positions where request and instrument must be grounded safely.

6. The power supply cable could choose multiple cores cable, suggestion for outer diameter of cable is 5-9mm, make sure the cable inlet is sealed, and there is grounded reliably, in order to ensure the instrument will work normally without any interference.

7. When installed outside, must take measures of rain-proof, housing cover, cable gland, plug must be fastened well.

8. It is strictly prohibited to damage the protection sleeve (insulation layer) of the instrument. The instrument damage caused by human factors will not be guaranteed.

9. All conditions of project must be understood clearly before order, it is forbidden to be installed in over pressured or overheated places.

10. Improper use of instrument by customer is not covered by the warranty. Please note that when the customer delivers the instrument for maintenance, freight collect will be refused.