UQK-A Top Mounted Float Level Switch

For tank 1
UQKABS4 (level range 700mm

For tank 2
UQKBBS4 (level range 0-2500mm)

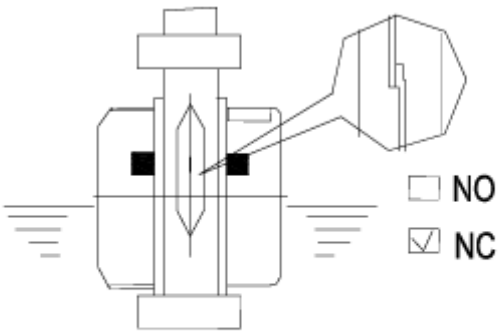
One. Functions and working principle

1. UQK magnetic floater liquid level switches is widely used in liquid level control and alarm in open and closed container in lines of industrial, civil architecture, water and sewage. It is a safe, economic, reliable, using flexible level controller with various functions.
2. UQK type level switches is consisting of magnetic floater, stable leader, reed switches, explosion isolation type wiring box and installing fittings. Magnetic floater moves with liquid level up and down, and the reed contactors in the leader changing on and off switch and output the signal accordingly.
3. Reed tube contactors changing on and off instantaneously, and match with relays, it can realize various high pressure and large current control. The read contactors is strictly sealed in glass which were filled with inactive gas, so the contactors won't generate spark when contactors on or off. It can control the liquid level safely.
4. UQK type magnetic floater level switches have the following control types:
   (a) High, High High level, low, low low level control and alarm

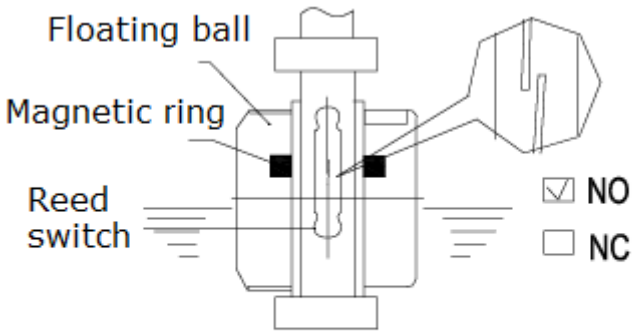
Floater number: >=1pcs, one floater have two set points

Normally open: When the reed switch in the magnetic area, it is closed; when out of the magnetic area, it is open (not work).

Normally close: When the reed switch in the magnetic area, it is open; when out of the magnetic area, it is closed (work). See to picture bellow:



Normally close(NC), when liquid rise, the switch don't close.

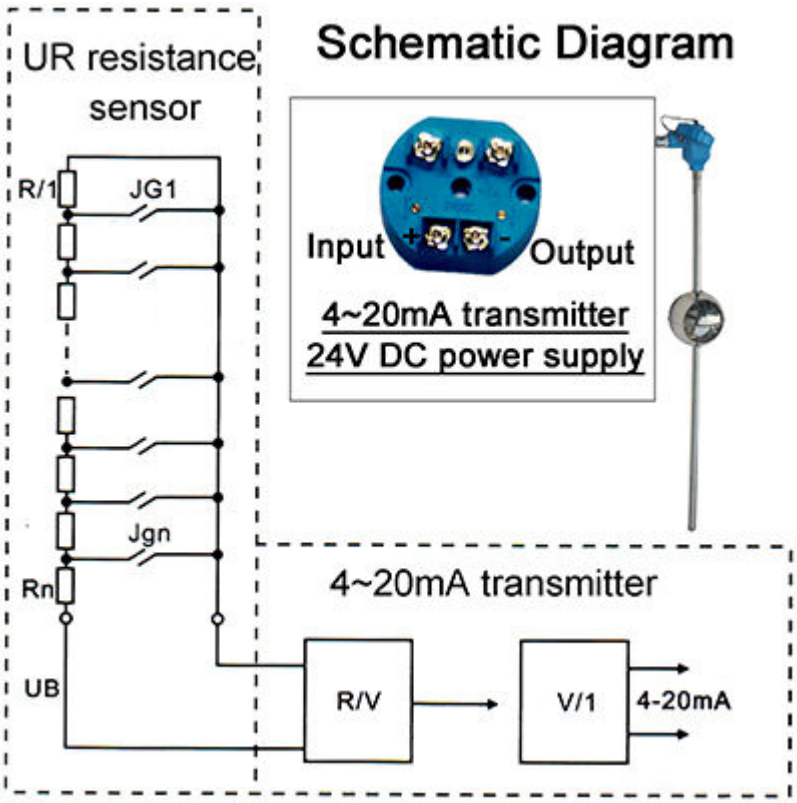


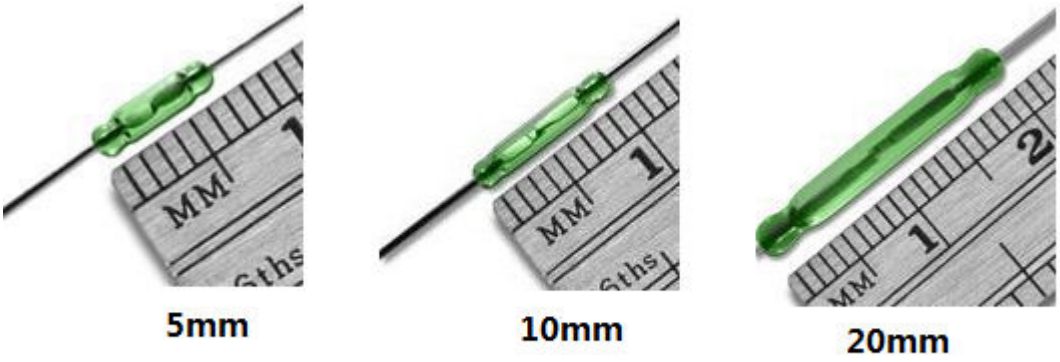
Normally open (NO): when liquid rises, the reed switch closed (switch on)

- **TWO. Technique parameters**

1. fluid density: >0.6/cm^3
   Fluid temperature: -20 ºC ~ 130ºC
   Fluid pressure: 0~2.5Mpa
   Fluid viscosity: 0.007Pa.s, $10^{-4}m^2/s$
2. Control sensitivity: 10mm
3. Contactor output value: DC24V, 0.5A; 220V 0.3A (1A)
   Contactor life: $5*10^5$ times
4. Measure ranges: 500mm~6000mm
5. Connection：flanged or screw on order
6. floater size: Φ150， （Φ120，Φ52 selectable）
   Leader: Φ20*2 (Φ12 is selectable)
7. With Explosion-proof function
8. Head material: Pressure Die-Cast Aluminium Enclosure weather proof/Ex-proof IIA/IIB class
9. SS304 / SS 316 / SS 316L / PP Ball Type Floats
10. MS still pipe as std and SS 304 / SS 316 on demand
11. Micro switch is rated at 0.3A/220VAC, 1A/3A 220VAC, SPDT or DPDT
12. Top Mounting with 100 NB MS Powder coated Flange as std. other material on demand
13. Can be supplied with External Cage and isolation valves
14. Contact types: normally open (NO), Normally close (NC), NO/NC
15. Types of Switch control:
    a. High level control
    b. High level control and alarm
    c. High level control and high level, low level alarm
    d. Low level control
    e. Low level control and alarm
    f. Low level control and high level, low level alarm

Three. UR type resistance liquid level Switch and UQK-B level transmitter.





Reed switches

1) The working principle of UR type resistance / Reed switch Contact Chain level transducer:

UR type resistance liquid level probe can matches with magnetic Bi-color liquid level gauge realize remote indicating and control.

The UR resistance chain level transducer working principle is that:

The transducer consists of a float & guide tube assembly in non-magnetic material to achieve undisturbed flux. A chain of closely spaced glass encapsulated reed switches & a resistor is placed inside the tube. During rise and fall of liquid level, the float moves & actuates a reed switch in the chain, through a magnet system within it and develops a proportional voltage. The operation

is similar to a sliding resistance potentiometer. If UQK-B type liquid level transmitter matched with intelligent digital display instrument, display instrument transmit the value of the UR type resist transducer to relative liquid level digit and LCD display the liquid level.

2) UQK-B resistance and 4~20mA liquid level transmitter

UQK-B type liquid level transmitter comprises of a level transducer and a transmitter. The transducer sensed voltage is fed to the transmitter for conversion to a signal of 4-20 mA, which can be either processed through a display unit to give a digital indication, with or without alarm set points or employed for use with Process Indicator, PLC/DCS or Recorders. The 4~20mA signal can transmit in the scope of 0~3Km which overcome the defect that the resist value changing during the remote transmitting to digital instrument.

3) Technical parameter:

UR type: resist value 0~4kΩ;

UQK-B type: resist value 0~4kΩ, output current: 4~20mA, power supply: D.C24V two-wire system.

4) Calibration:

Connect D.C24V electric power when calibration and read current value through multifunction gauge.

Imitation calibration: using resistance box imitating UR transducer resist value.

4mA(zero location)calibration: resistance box resist value set to zero, then adjust UQK-B transmitter zero button, to read output current to 4mA.

20mA (full scale) calibration: adjust resistance box resist value to the value of UR type transducer' s full scale. Adjust button "scale" to make transmitter output value read 20mA. At last repeat the zero and full scale, and then complete the task.

Practice calibration: UR transducer installed in magnetic floater liquid level gauge, UQK-B's transmitter installed in junction box of UR type, and correct wiring electric power and the digital electric current meters.

4mA (zero location) calibration: set liquid location to zero, adjust UQK-B button "zero" to its outputting current read as 4mA.

20mA (full scale) calibration: set liquid location to full scale (whose full scale resist value is 4k), then adjust the button "Scale" to the digit when transmitter output 20mA, repeat the operation, the calibration has been completed.

Name	floating level transmitter
output	2-wire 2~20mA, switching alarm, LCD, Hart optional
Load	0~500Ω
Level range	H=0.1~30m(special assemble if longer than 6m)
Accuracy	A:+/-5mm, B: +/-10mm, C: +/-20mm
Fluid temperature	-20~150℃
Electric Power	DC 24V

Model selection of Floater level switch and level transmitter						
UQK	A: Level Switch (mark switch quantity), Example: A2					
	B: floater level transmitter					
Accuracy (transmitter)	A	5mm				
	B	10mm				
	C	20mm				
Signal (transmitter)		L	LCD			
		H	Hart			
Material			S4	SS304	-30-120℃	≤2.5 MPa
			S6	SS316	-30-120℃	≤2.5 MPa
			F	PTFE	-30-120℃	≤1.6 MPa
			P	PP	-30-80℃	≤1.0 MPa
structure				1	Float ball diameter: 45mm. H1=40mm, H2=30mm	
				2	76mm, H1=50mm, H2=40mm	
				3	125mm, H1=80mm, H2=65mm	
Float ball quantity						
Installation					F	flange: 2 (DN50), 3 (DN80), 4(DN100)
					P	angle plate bracket
					S	screw
					A	adjustable screw is optional

Installation and usage:

When install the instrument, check the float leader and confirm the leader no bend, damage or crack. The float ball must move easily on the leader, the junction box no damage, cover fix well. Find a multimeter, test the switch on-off condition by moving floater ball up and down. Adjust the up and down stopper position and fix it. When all is ok, power off, install and wiring.