

UQK-300

FLOAT LEVEL SWITCH

Operation Manual

UQK-300-DT-JS-1018-2018(A)



Preface

Thank you for choosing the products of Dandong Top Electronics Instrument (Group) Co., Ltd.

This operation manual provides you with important information on installation, connection and commissioning as well as on maintenance, troubleshooting and storage. Please read it carefully before installation and commissioning and keep it as part of the product near the meter for easy reading.

This manual can be downloaded by entering the version number at www.ddtop.com .

If the instructions are not followed, the protection provided by the meter may be destroyed.

Trademark, Copyright and Restriction Instructions

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The performance specifications of the meter are effective as of the date of publication and are subject to change without notice. Dandong Top Electronics Instrument (Group)Co.,Ltd. reserves the right to modify the products described in this manual at any time without prior notice.

Quality Assurance

Dandong Top Electronics Instrument (Group) Co.,Ltd. guarantees that all glass plate level gauge have no defects in materials and manufacturing processes within one year from the date of delivery.

During the warranty period, if the product returns with quality problems and the claim is determined by the manufacturer to be within the scope of warranty, Dandong Top Electronics Instrument (Group) Co.,Ltd. is responsible for repair or replacement of the buyer (or owner) free of charge.

Dandong Top Electronics Instrument (Group) Co.,Ltd. is not responsible for the costs caused by improper use of equipment, labor claims, direct or subsequent damage and installation and use of equipment. In addition to the special written warranty certificate for certain products of Dandong Top Electronics Instrument (Group) Co.,Ltd., Dandong Top Electronics Instrument (Group) Co.,Ltd. does not provide any express or implied warranty.

Quality

Dandong Top Electronics Instrument (Group) Co.,Ltd. has passed the ISO9001 quality system certification. The whole process of product production is strictly in accordance with the scope of the quality system, providing the strongest guarantee for product and service quality.

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1. Safety Tips

It is expressly prohibited to modify or change products for safety reasons, repair or replacement only allows the use of accessories specified by the manufacturer.

1.1 Explosion May Result In Death or Serious Injury.

When installing equipment in an explosive atmosphere, be sure to follow applicable local, national, international standards, codes, and procedures. Be sure to install the equipment in intrinsically safe or non-flammable site operating procedures.

1.2 Process Leaks Can Cause Serious Injury or Death.

Care should be taken to lift the transmitter. If the process seal is damaged, the medium may leak at the joint.

1.3 Failure to Follow Safe Installation Guidelines May Result In Death or Serious Injury.

The operations described in this manual are performed by professionally trained and qualified professionals or end-user specialized professionals to complete.

2. Product Manual

2.1 Main Structure of Product -Figure 1

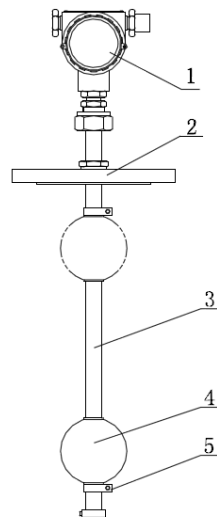


Figure 1

1. Transmitter
2. Flange
3. Connecting rod, built-in reed switch
4. Magnetic float, built-in magnetic steel
5. Limit ring

2.2 Operating Principle-Figure 2

The magnetic float floats up and down with the medium, and the internal magnetic steel senses the internal reed switch at the set alarm point. The reed switch is attracted or disconnected by the influence of the magnetic field, thereby controlling the signal alarm device to alarm or start and stop the electric pump.

UQK300 Float Level Switch each predetermined alarm position is fixed, the connecting rod has a reed switch built in the predetermined alarm position, and the reed switch is a conversion type, and has two contacts, normally open and normally closed. The magnetic float moves to the position of the reed switch, the reed switch is turned on, and the normally open and normally closed contacts are switched. When the magnetic floating leaves the reed switch, the reed switch is disconnected, and the normally open and normally closed points are restored to the original state.

UQK300 Float Level Switch has a limit ring on the connecting rod. For high level alarm, the limit ring is above the predetermined alarm position. For low level alarm, the limit ring is below the predetermined alarm position. The limit ring is set so that each alarm signal has a hold function, that is, when the level is too high or too low, the level switch maintains an alarm signal.

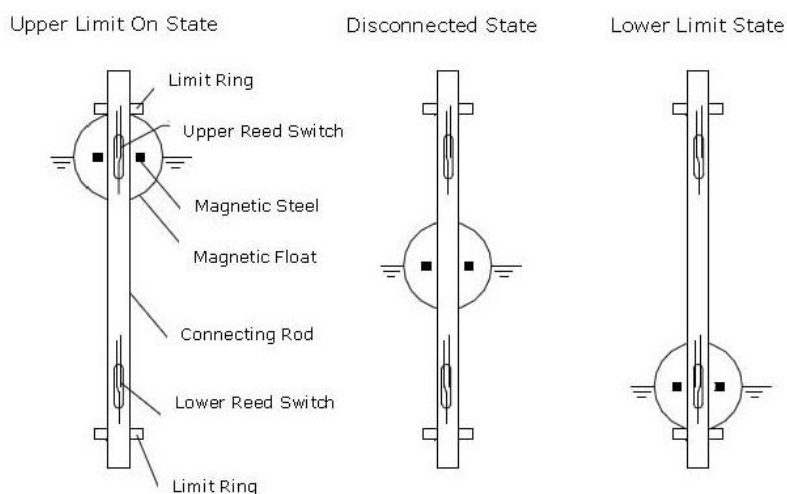


Figure 2

2.3 Packing

Please send the packaging waste to a special recycling agency.

2.4 Transporting

When hoisting and transporting, please select qualified hoisting equipment and lifting straps, and pay attention to safety.

2.5 Warehousing

Storage Temperature -20°C~40°C;Storage Humidity≤40%.

3. Technical Characteristics

3.1 Main Performance

3.1.1 Has Passed the National Explosion-Proof Certification, Certification Mark:

Intrinsically safe type Ex ia II CT5/T6 Ga

Explosion isolation type Ex d II CT1 ~ T5/T6 Gb

3.1.2 Product Performance Standards: Q/AMM003 Float Level Switch

3.2 Main Parameters

3.2.1 Power Supply Voltage: AC220V DC24V

3.2.2 Output Signal: Relay Contact SPDT or DPDT

4. Dimensional Schematic -Figure 2

If the order is required to be a special size, the actual size will prevail.

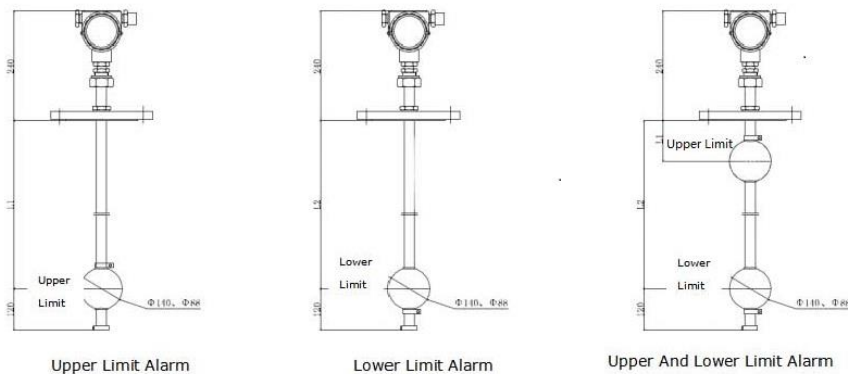


Figure 3-1 Upper Limit Alarm

Figure 3-2 Lower Limit Alarm

Figure 3-3 Upper and Lower

Limit Alarm

5. Unpacking and Inspection

5.1 Unpacking Inspection Notice

5.1.1 Check whether the product nameplate (Figure 4) is consistent with the supply list information.

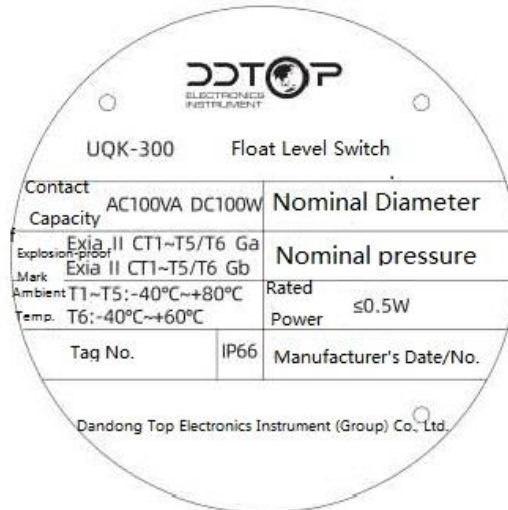


Figure4 Sample Nameplate

5.1.2 对照装箱清单，检查各零件数量，材质是否正确。

5.1.2 Check the quantity of each part against the packing list and the material is correct.

5.2 Check Content

5.2.1 Check the appearance of the instrument for defects, damage and other abnormal conditions.

6 Installation

6.1 Installation Tool

6.1.1 Wrench, flange gasket and flange bolts for process connections.

6.1.2 Level

6.2 Installation Technical Requirements

6.2.1 Before installation, determine if the container flange is level (see Figure 5), and ensure that the flange level is within 3 °.

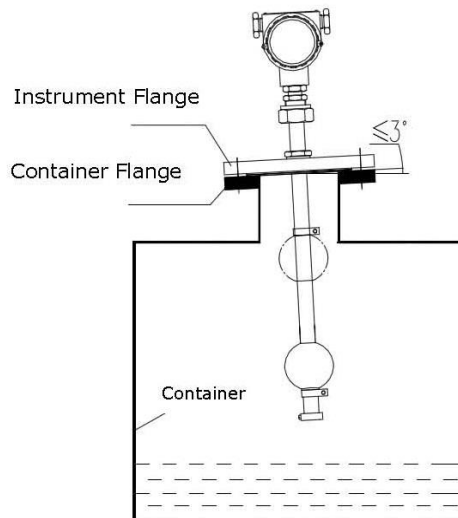


Figure 5

6.2.2 Ensure that no ferromagnetic particles in the media may be attracted to the controller magnet bar to affect switching performance.

6.2.3 The level fluctuation frequency of the measured medium should not be too large, and the fluctuation range should not exceed the allowable action limit. The installation position is far from the liquid inlet.

6.3 Installation Process

6.3.1 Place the gasket on the flange sealing surface of the container.

6.3.2 Carefully pick up the controller and load the float into the container.

6.3.3 Align the controller flange with the container flange and rotate the controller flange to align the bolt holes. Make sure the flange gaskets are installed correctly.

6.3.4 Install flange bolts and nuts. Alternately tighten flange bolts.

7. Debugging

7.1 Preparation for Commissioning

7.1.1 Debugging Tool: Multimeter

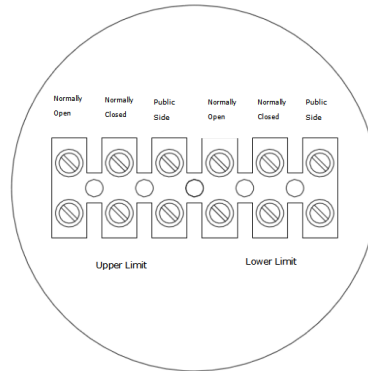
7.2 Electrical Wiring

7.2.1 Cable preparation: Wiring should be $\Phi 10\text{mm}$, five-core rubber sleeve soft wire or rubber cable, one core is the inner ground wire, and the other four cores are connected to a pair of normally open and normally closed contacts.), or for two pairs of normally open, normally closed contact wiring.

7.2.2 Electrical Wiring

1. Remove the Cover

2. Wiring according to the wiring diagram (see Figure 6), for high or low alarm, normally open - common; for interlocking start pump, connect the corresponding terminal according to the different requirements of liquid inlet or drain.



***The normally open and normally closed points in the wiring diagram refer to the original state of the magnetic switch.**

3. All terminals should be in good contact, the output nut should be properly pressed to prevent the lead from loosening.

4. Make sure that the extra wires do not interfere with the movement of the switch cover or switch mechanism.

7.3 Debugging Process

7.3.1 Before installation, connect the multimeter to the terminal that needs to be wired, lift or lower the float to simulate the level lift, and verify that the output status is correct.

7.3.2 After installation, connect the multimeter to the terminal that needs wiring. When the level reaches the alarm position, check whether the level output is correct.

8. Precautions

8.1 The density of use should be the same as the design density. If the density changes, please contact the factory to confirm whether it can continue to be used.

8.2 Make sure the power supply is safe and reliable, and must be powered off before opening the cover.

8.3 Float level switch is not suitable for occasions with high vibration.

8.4 Media with viscosity $\geq 500\text{mPa/s}$ is not suitable for use with the float level switch.

8.5 Media with ferromagnetic particles are not suitable for use with float level switch.

8.6 After wiring, tighten the power cover to prevent the instrument from getting wet.

9. Fault Analysis and Elimination

Fault Phenomenon	Cause of Issue	Troubleshooting Method
The level to the specified position switch is not moving.	1、 The ball is too heavy to float. 2、 The float ball smashed, leaked, and entered the medium. 3. Ferromagnetic particles or obstacles in the medium cause the ball to block. 4. Granular impurities in the medium. 5. Magnetic switch failure.	1. Confirm the density and replace the float. 2. Replace the float. 3. Remove the instrument to clean the float and connecting rod. 4. Replace the magnetic switch.
The actual alarm position is deviated from the specification requirements.	Process parameters are not accurate (actual density or alarm set value is inconsistent with design).	Re-determine process parameters, contact the factory and make adjustments.

10 Disassembly

10.1 Warning

Must be powered off before opening the cover.

Attention should be paid to hazardous process conditions, such as pressure inside the vessel, high temperatures, corrosive or toxic media, etc.


Refer to the instructions in section 6.3 Installation Operation and Section 7.2 Electrical Wiring to remove the parts in the reverse order of operation.

10.2 Waste Removal

Waste disposal should be carried out in accordance with the current guidelines in each region.

11 Product Certification

产品认证			
认证	证书编号	认证范围/描述	
防爆合格证		本安 CCRI17.2162X 隔爆 CCRI17.1254X	Ex ia II C T1~ T5/T6 Ga Ex d IIC T1~ T5/T6 Gb

Product certification		
Certification	Certificate No.	Scope of certification/description
Explosion Proof Certificate	 CCRITC	Ex ia CCR17.2162X
		Ex d CCR17.1254X
		Ex ia IIC T1~ T5/T6 Ga Ex d IIC T1~ T5/T6 Gb