

UQK-01 / 02 / 03 float level controllers

User manual and installation guide | English edition

1. Application

UQK controllers control liquid levels in industrial open or pressurized vessels. At the upper and lower switching limits, the microswitch contacts operate a signal or alarm circuit. UQK-03 is intended for open vessels.

2. Models and technical data

Model	Operating differential	Adjustment	Installation
UQK-01	10mm	Fixed	Horizontal
UQK-02	25–550mm	Stepped	Horizontal
UQK-03	8–1000mm	Stepless	Vertical

UQK-03 can be customized for an operating differential up to 2m.

Parameter	Manual specification
Working pressure	1.6MPa; UQK-03 open-vessel application
Medium temperature	Up to 150°C
Output contact rating	220–380VAC, 1A
Weight	1.2–2kg

3. Construction and operating principle

The controller consists of a float assembly, microswitch assembly and enclosure. Two magnets of mutually repelling polarity are fitted to the float-end mechanism and microswitch assembly. As the float rises or falls, its magnet swings with it and moves the other magnet through a nonmagnetic housing. This operates the output contacts to control an audible or visual signaling device.

The contacts change state only at the upper and lower limits of the operating differential. No additional switching signal is produced while the float travels between these limits.

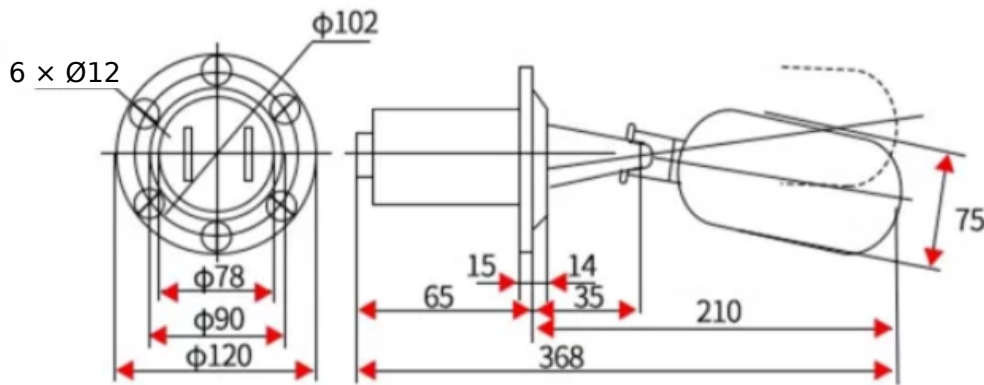
The general construction described in the manual uses a 1Cr18Ni9Ti stainless steel float and an aluminum enclosure. Copper or stainless steel enclosure materials can be specified. The float and microswitch assemblies are isolated from each other, reducing the leakage paths associated with direct mechanical penetration.

4. Stainless steel configuration

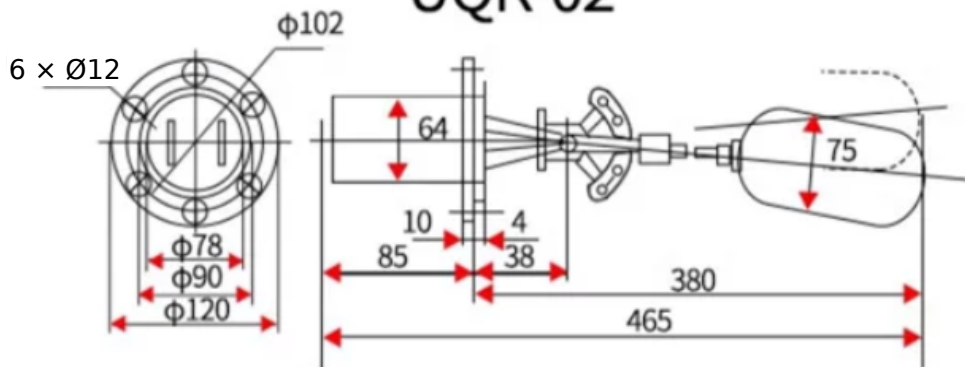
The stainless steel product uses a 304 stainless steel float, linkage and reinforced flange, with 316 stainless steel available for compatible corrosive liquids. A rubber gasket seals the flange. The standard operating range is –30–120°C; select the high-temperature configuration for medium temperatures up to 150°C. Enclosure protection is IP65 or higher, with IP68 configurations available. Use the ordered unit's temperature, material and sealing specification.

Current stainless steel outlines

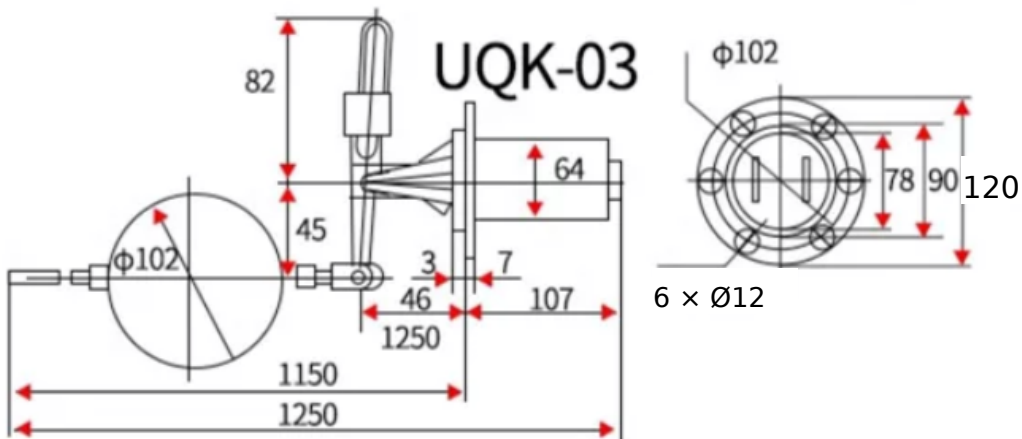
UQK-01



UQK-02



UQK-03



Dimensions in mm. UQK-03 is shown horizontally for dimensioning; install it vertically. Six $\phi 12$ holes lie on the $\phi 102$ pitch circle within the $\phi 120$ flange.

Dimensional references and mounting

Dimensions in mm. Flanges are nonstandard raised-face connections. Match the complete mating geometry; nominal pipe-size assumptions are insufficient.

5. Current configuration dimensions

Model	Principal dimensions	Other drawing dimensions
UQK-01	Overall 368; float diameter 75; flange outside diameter 120	Rear projection 65; front reference 210; 15, 14 and 35
UQK-02	Overall 465; front projection 380; rear projection 85; float diameter 75	Head diameter 64; 10, 4 and 38
UQK-03	Overall 1250; rod-side reference 1150; float diameter 102	Head diameter 64; head-side projection 107; 82, 45, 46, 3 and 7

Common flange features: six Ø12 holes on a Ø102 pitch circle, with Ø90 and Ø78 concentric face references; flange outside diameter Ø120. UQK-03 is shown horizontally in its outline view for dimensioning, but is installed vertically.

6. General manual dimensions

Model	Principal dimensions	Other drawing dimensions
UQK-01	Overall 300; front reference 210; rear reference 65; float diameter 75	15, 4 and 35
UQK-02	Overall 465; front reference 380; rear reference 85	10, 4 and 35
UQK-03	Overall 1250; lower reference 1150; float diameter 120	Common flange face references Ø78, Ø90 and Ø102

The current and general-manual outlines describe different float and linkage configurations. Select the dimensional drawing corresponding to the supplied assembly.

7. Mating flange

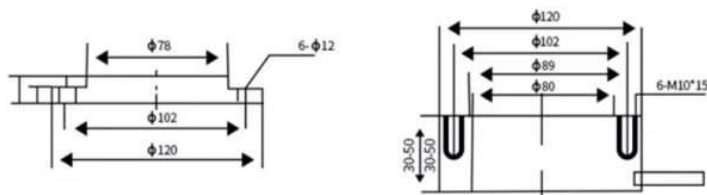


Figure 2: Flange A and Flange B

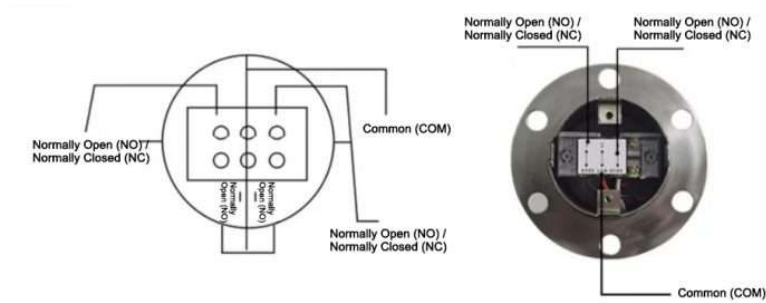
Flange A: Ø120 outside diameter, Ø102 bolt circle, Ø78 opening and six Ø12 holes. Mating flange B: Ø120 outside diameter, Ø102 bolt circle, Ø89 and Ø80 internal references, with 30/50 height references. The mating-thread callout is 6-M10×15. Specify the complete thread and engagement detail with the mating flange.

Installation, wiring and adjustment

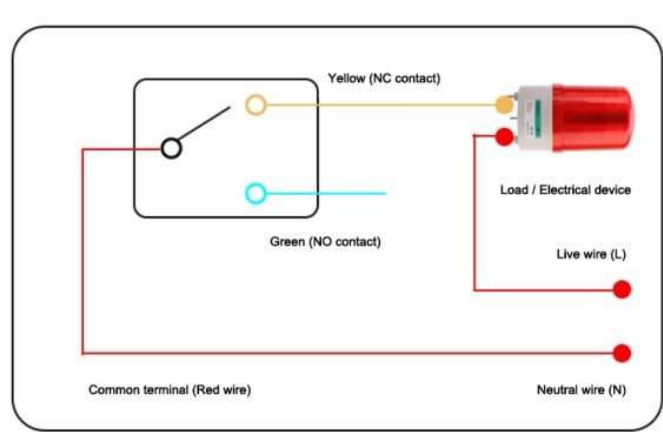
8. Installation

Install UQK-01 and UQK-02 horizontally, with the threaded cable-exit opening facing down. Install UQK-03 vertically. Use a matching lower flange made to the nonstandard raised-face dimensions. For UQK-03, the float is larger than the flange opening, so the tank cover must be removable for installation.

9. Terminal connection



The center column is common. The two outer columns are the changeover contacts. Confirm normally open and normally closed states on the supplied controller and test them at both operating limits before commissioning.



Illustrated lead	Contact function
Red	Common (COM)
Yellow	Normally closed (NC)
Green	Normally open (NO)

In the illustrated indicator circuit, red COM returns to neutral, yellow NC connects to the indicator, and the other indicator terminal connects to live. Green NO is unused in that example. Use the selected contact for the required alarm or control logic. The output is a control contact; use a suitable relay or contactor for pump and valve loads. Isolate the complete circuit before wiring or maintenance.

Adjustment and commissioning

10. Adjustment

UQK-02: The operating differential is adjusted in steps. Change the relative positions of the upper and lower stop screws on the sector lever to change the float swing angle. Alternatively, remove the split pin and replace the connecting rod with one of a different length to change the swing radius.

UQK-03: The operating differential is continuously adjustable. Change the relative positions of the upper and lower locating collars on the float guide rod. Adjust the lever counterweight for the selected arrangement.

11. Precautions

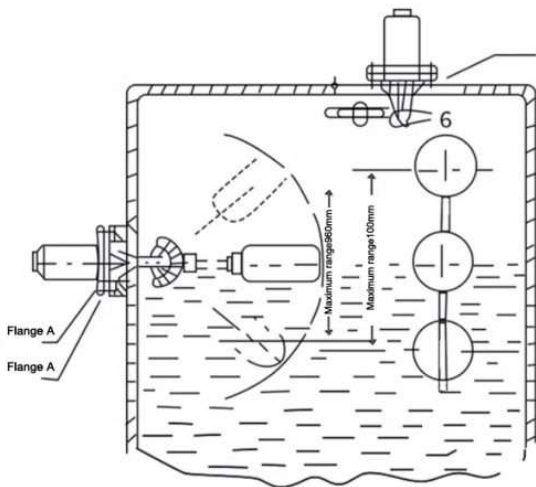
Reliably earth the metal enclosure, normally at the flange. The controlled medium must not contain magnetically permeable material. Avoid excessively rapid liquid-level fluctuations and keep the float motion unobstructed.

12. Ordering information

Specify the model, product name and technical requirements, including the enclosure material. Copper and stainless steel enclosure options are available for the general construction. Specify UQK-03 for an open vessel. For a stainless steel assembly, also state the liquid, pressure, temperature, flange dimensions, float and linkage arrangement, switching limits, contact logic and cable length.

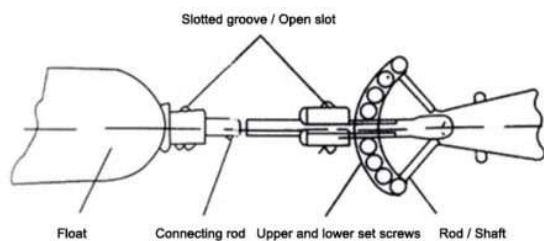
Installation and adjustment illustrations

13. Tank installation



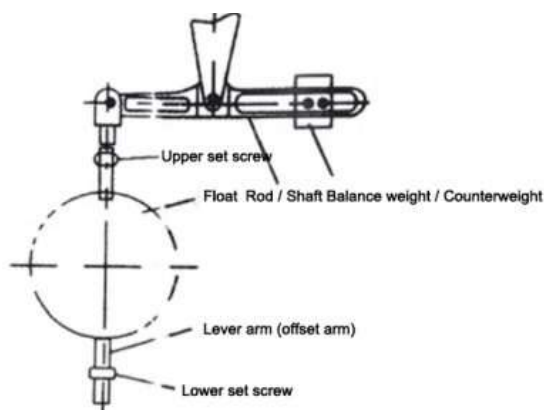
UQK-01 and UQK-02 enter through the side wall. UQK-03 is mounted vertically from the removable cover. The illustration shows a maximum 550mm differential for UQK-02 and 1000mm for the standard UQK-03.

14. UQK-02 sector-lever adjustment



Set the upper and lower screws on the slotted sector lever. A different connecting-rod length changes the swing radius.

15. UQK-03 guide-rod adjustment



Set the upper and lower stops on the float rod and balance the lever with its counterweight. Verify both switching levels after adjustment.