

## UHC, UQC Series Magnetic Float Level Transmitter

### Summary

UHC series magnetic float level transmitter and UQC series magnetic ball float level transmitter are new designed generation level indicator according to magnetic coupling principle. They present the level indication directly and clearly with advanced technology and the proper structure and are suitable for petroleum, chemical, power, light industry and pharmaceutical industrial field, etc. UHC series magnetic float level transmitter is mounted on side of vessels, while UQC series magnetic ball float level transmitter is mounted on the top of vessels, especially for the measurement of the underground storage tanks.



UHC type

### Operation principle

UHC series magnetic float level transmitter and UQC series magnetic ball float level transmitter are composed of body part and local indicator. UHC series magnetic float level transmitter is mounted and connected on the side of vessels. When the float moves up and down with the level (interface) changing, the magnet steel inside float drives the magnetic flakes inside of the indicator to roll over. All the magnetic flakes are coated with red one side and white another side (liquid is red, air is white). The continuous red or white zone can clearly indicate actual level or interface inside of vessels. While UQC series magnetic ball float level transmitter is mounted on the top of vessels. With the level or interface changing, the ball float will move up and down and drive the magnetic connecting rod going up and down. The magnet steel inside of the connecting rod drives the magnetic flakes inside of the indicator to roll over. All the magnetic flakes are coated with red one side and white another side (liquid is red, air is white). The continuous red or white zone can clearly indicate actual level or interface inside of vessels. If equip with remote transducer and upper/lower alarms the UHC, UQC series transmitters can realize remotely transmitting the level signal and automatically controlling.



UQC type

# UHC, UQC Series Magnetic Float Level Transmitter

## Main technical parameter

### 1. Local indicator unit

#### 1.1 UHC ordinary magnetic float level transmitter

**Application range:** This level transmitter is the most frequently used side-mounted magnetic float level transmitter, is suitable for level measuring which the liquid medium PN  $\leq 6.3\text{MPa}$  and the operating temperature  $\leq 300^\circ\text{C}$ .

**Range:** 300mm ~ 6000mm (increasing the range can be manufactured specially)

**Nominal pressure:** 10MPa ~ 16MPa

**Nominal diameter:** DN25 (or on request)

**Ambient temperature:**  $-40^\circ\text{C} \sim +80^\circ\text{C}$

**Operating temperature:**  $\leq 300^\circ\text{C}$

**Measuring accuracy:**  $\pm 5\text{mm}$

**Medium density:** Level:  $\rho \geq 0.45\text{g}/\text{cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g}/\text{cm}^3$

**Wetted material:** 304, 316L or on request

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

#### 1.2 UHC.GY high pressure magnetic float level transmitter

**Application range:** this level transmitter is frequently used in high pressure environment, is suitable for level measuring which the liquid medium PN between 10MPa and 16MPa and the operating temperature  $\leq 300^\circ\text{C}$ .

**Range:** 300mm ~ 6000mm (increasing the range can be manufactured specially)

**Nominal pressure:** 10MPa ~ 16MPa

**Nominal diameter:** DN25 (on request)

**Ambient temperature:**  $-40^\circ\text{C} \sim +80^\circ\text{C}$

**Operating temperature:**  $\leq 300^\circ\text{C}$

**Measuring accuracy:**  $\pm 5\text{mm}$

**Medium density:** Level:  $\rho \geq 0.5\text{g}/\text{cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g}/\text{cm}^3$

**Wetted material:** 304, 316L or on request

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

#### 1.3 UHC.GW high temperature magnetic float level transmitter

**Application range:** this level transmitter is frequently used in high temperature environment, is suitable for level measuring which the liquid medium of PN  $\leq 11\text{MPa}$  and the operating temperature between  $+300^\circ\text{C} \sim +450^\circ\text{C}$ .

**Range:** 300mm ~ 6000mm (increasing the range can be manufactured specially)

**Nominal pressure:**  $\leq 11.0\text{MPa}$

**Nominal diameter:** DN25 (on request)

**Ambient temperature:**  $-40^\circ\text{C} \sim +80^\circ\text{C}$

**Operating temperature:**  $+300^\circ\text{C} \sim +450^\circ\text{C}$

**Measuring accuracy:**  $\pm 5\text{mm}$

**Medium density:** Level:  $\rho \geq 0.5\text{g}/\text{cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g}/\text{cm}^3$

## UHC, UQC Series Magnetic Float Level Transmitter

**Wetted material:** 304, 316L or on request

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

### 1.4 UHC.F antirot magnetic float level transmitter

**Application range:** Chamber 304 interior liner PTFE , this transmitter is suitable for measuring level for petrol and chemical industry while with of strong corrosion occasion.

**Range:** 300mm ~ 6000mm

**Nominal pressure:**  $\leq 2.5$ MPa

**Nominal diameter:** DN25 (or on request)

**Ambient temperature:**  $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

**Operating temperature:**  $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

**Measuring accuracy:**  $\pm 5$ mm

**Medium density:** Level:  $\rho \geq 0.5\text{g/cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g/cm}^3$

**Wetted material:** chamber 304 interior liner PTFE, float PTFE

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

### 1.5 UHC.O vacuum jacket magnetic float level transmitter

**Application range:** this level transmitter is suitable to measure liquid medium for low temperature and easy to frost occasion.

**Range:** 300mm ~ 6000mm

**Nominal pressure:**  $\leq 6.3$ MPa

**Nominal diameter:** DN25 (or on request)

**Ambient temperature:**  $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

**Operating temperature:**  $-196^{\circ}\text{C} \sim 0^{\circ}\text{C}$

**Measuring accuracy:**  $\pm 5$ mm

**Medium density:** Level:  $\rho \geq 0.5\text{g/cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g/cm}^3$

**Wetted material:** 304, 316L or on request

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

### 1.6 UQC magnetic ball float level transmitter

**Application range:** this level transmitter is suitable to measure liquid medium for underground tank and container that is difficult to open flank.

**Range:** 0mm ~ 4000mm

**Nominal pressure:**  $\leq 2.5$ MPa

**Nominal diameter:** DN150

**Ambient temperature:**  $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$

**Operating temperature:**  $-40^{\circ}\text{C} \sim +300^{\circ}\text{C}$

**Measuring accuracy:**  $\pm 5$ mm

**Medium density:** Level:  $\rho \geq 0.5\text{g/cm}^3$ ; Interface:  $\rho_1 - \rho_2 \geq 0.16\text{g/cm}^3$

**Wetted material:** 304, 316L or on request

**Flange standard:** HG/T20592-2009, HG/T20615-2009 or on request

## UHC, UQC Series Magnetic Float Level Transmitter

### 2. Remote unit

Remote transmitter is divided into two forms, one is reed-resistance remote level transmitter, and the other is magnetostrictive remote level transmitter.

#### 2.1 Reed-resistance remote level transmitter

Remote transmitter is binded on outside of chamber. When float moves up and down with level changes, reed switch corresponding to level will pull in under the action of float magnetic field, so that resistance and current will change, transduction circuit will be transferred into signal of 4-20mA DC to realize remoting.

Range: 300mm-6000mm (increasing the range can be manufactured specially)

Power supply: 24V DC

Output signal: DC 4mA-20mA

Ambient temperature: -40°C - +80°C

Operating temperature: -40°C - +120°C

Measuring accuracy: ±5mm

Power supply inlet: M20 x 1.5 (female thread) or on request

Explosion-proof: Exd II CT4-T6, Exia II CT4-T6

Protection class: IP67

#### 2.2 Magnetostrictive remote level transmitter

Remote transmitter is binded on outside of chamber. There is a magnetostrictive line in remote measuring pipe. Through sensor circuit which is controlled by microprocessor, the equipment launches current pulse along magnetostrictive line, thereby, generates toroidal magnetic field around magnetostrictive line. The magnetic steel inside of float magnetize magnetostrictive line along axial direction. Stacking place of two magnetic fields will generate a reverse pulse, this pulse will transmit to top of sensor along magnetostrictive line, the transmitting time of pulse will be captured and calculated by circuit unit to get the position of float.

Range: 300mm-6000mm (increasing the range can be manufactured specially)

Power supply: 24V DC

Output signal: DC 4mA-20mA + HART

Ambient temperature: -40°C - +80°C

Operating temperature: -40°C - +450°C

Measuring accuracy: ±5mm

Protection class: IP68

Power supply inlet: M20 x 1.5 (female thread)

Explosion-proof: Explosion isolation type: Exd II CT4-T6

Intrinsically safe type: Exia II CT4-T6

### 3. Upper, lower limit alarm

It is assembled on outside of chamber and can adjust position at will.

Output signal: one is normal open, one is normal close

Ambient temperature: -40°C - +80°C

Working life: ≥10<sup>5</sup> times

Protection class: IP67

Power supply inlet: M20 x 1.5 (female thread) or on request

Measuring accuracy: ±5mm

Contact capacity: AC200VA, DC50W

# UHC, UQC Series Magnetic Float Level Transmitter

## Model selection table

Model	Code		Code meaning
UHC-			Magnetic float level transmitter
UHC.GY-			High pressure magnetic float level transmitter
UHC.GW-			High temperature magnetic float level transmitter
UHC.F-			Antirot magnetic float level transmitter
UHC.O-			Vacuum jacket magnetic float level transmitter
UQC-			Magnetic ball float level transmitter
	M		With local indicator
	N		Without local indicator
	S		With reed-resistance remote level transmitter
	U		With magnetostrictive remote level transmitter
	T		Without remote level transmitter
	A		With upper or lower limit alarm
	C		With upper and lower limit alarms
	D		Without alarm
	E		PN1.0MPa
	F		PN1.6MPa
	G		PN2.5MPa
	J		PN4.0MPa
	H		PN6.3MPa
	O		PN10MPa
	P		PN16MPa
	Q		Other pressure class
	*		Level $\rho$ or interface $\rho_1 / \rho_2$
	-		
		*	Measuring range. For UQC, please note the neck length.
		d	Explosion isolation
		i	Intrinsically safe
Additional code		W	With steam jacket (ZG1/2" male thread)
		L1	Vent valve above
		L2	Blow-down valve below
		L3	Vent valve above and blow-down valve below
□	—	□	□

**Note:** If PN is higher than above table, please refer to model selection table to choose a similar model according to actual request.

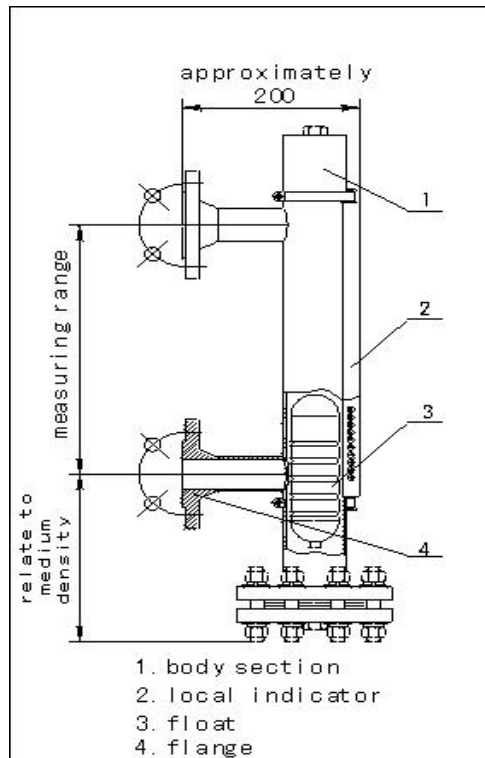
### Example:

UHC-MSCF0.8/0.5-1800dWL2 magnetic float liquid level indicator, with local indicator, with reed-resistance remote level transmitter (non-intelligent), with upper and lower limit alarms, nominal pressure 1.6MPa, measuring interface, medium densities are  $0.8\text{g/cm}^3$  and  $0.5\text{g/cm}^3$ , measuring range is 1800mm, Explosion isolation, with steam jacket and blow-down valve below.

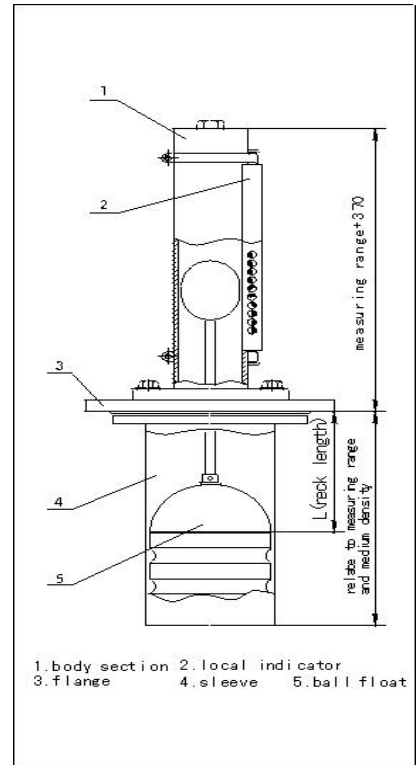
# UHC, UQC Series Magnetic Float Level Transmitter

## Outline and Installation Dimensions

### 1. Structure and size



UHC



UQC

### 2. Notice for use

Measured medium can't have ferromagnetism content.

### Order requirements

Please select product model according to the model selection table.

- ◆ Medium name and density
- ◆ Medium operating pressure & temperature
- ◆ Wetted material
- ◆ Range
- ◆ Flange standard

Application range	Chamber 304 interior liner PTFE , this transmitter is suitable for measuring level for petrol and chemical industry while with of strong corrosion occasion.
Range	300mm ~ 6000mm
Nominal pressure	≤2.5MPa
Nominal diameter	DN25 (or on request)
Ambient temperature	-40℃ ~ +80℃
Operating temperature	-30℃ ~ +200℃
Measuring accuracy	±5mm
Medium density	Level: $\rho \geq 0.5\text{g/cm}^3$ ; Interface: $\rho_1 - \rho_2 \geq 0.16\text{g/cm}^3$
Wetted material	chamber 304 interior liner PTFE, float PTFE
Flange standard	HG/T20592-2009, HG/T20615-2009 or on request
Outer material	304;316L;on demand
Inner material	lined with PTFE
Float material	PTFE
flange standard	On demand
Tracing steam jacket joint	ZG1/2"(external thread)