Magnetic Flapper Level Indicator

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1. Overview

UHZ series magnetic level gauge is for on site level indication, use float as measurement unit, the magnet drive turned column showing the level without energy. It can work from low temperature to high temperature, from vacuum to high pressure, high viscosity, corrosion and so on. It measure the level safely and reliability. Under various environments to measure the liquid, the whole process of measurement without blind spots, display eye-catching, intuitive readings, measuring range. Products matching upper and lower limit switch output, remote alarm can be realized, limit control.

Products matching remote transmitter can be level, industry-bit signal into the two-wire 4-20mADC standard signal, to achieve long-range detection, direction, recording and control.

According to the installation site in the container to provide side loading, top loading, top-mounted side were three types. According to different working media, provide stainless steel, stainless steel lined with PTFE, ABS, PP-R, PVC, UPVC and other materials, including stainless steel, PTFE lining, ABS, PP-R, PVC, UPVC material for acid and alkali Corrosive media.

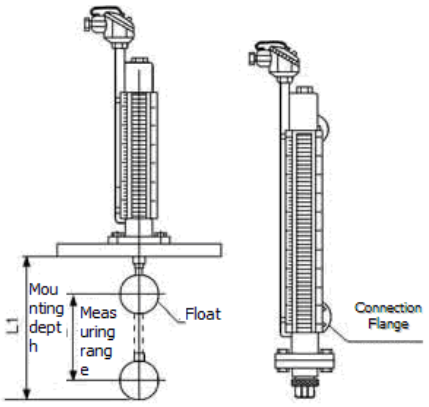
Products are widely used in electric power, petroleum, chemical, metallurgy, food and other industries in the production process level measurement and control.

2. Structure principle

Magnetic sub-level gauge is based on the buoyancy principle and the principle of magnetic coupling work. Float tube with the liquid level in measuring the rise and fall and move up and down the permanent magnet in the float through the magnetic coupling to drive the red, white cylinders flip 180 °, liquid level gauge to rise, turning from white to red column, a decrease of By the red to white, in order to achieve level instruction.

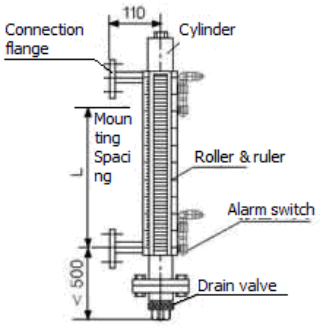
3. Model

1. **Basic model:**
   Suitable for level measurement of liquid medium which working pressure less than 4.0MPa, and working temperature lower than 200℃.



Top mounted Side mounted

Basic model with signal transmission



Basic model with up and down limit switch

2. **Anti-corrosion model:**
   It's suitable for acid, alkali and many organic solvents. It use PTFE lined stainless steel, PPR, PVC as body material.

3. **Jacket model:**
   Applied to antifreeze, insulation and heating level measurement occasions. Jacket type: steam jacket, water cycle jacket, vacuum jacket, electric heating jacket, and electric warming jacket.

   Jacket Type:
   a) Steam jacketed, jacketed water cycle: the main pipe plus the jacket layer, inner pass steam or water, used to maintain the temperature of the measured medium in the measurement cylinder, to prevent the measured medium temperature change occurs due to freezing, ice, etc.
   b) Vacuum jacketed (low frost type): the main tube and the critical point of the vacuum jacket insulation state of technology, the level meter in the low temperature and ultra-low temperature process is not under the surface frost.
   c) Electric heating type: the main pipe plus electric heating floor, built-in electric heating device, heating device passes through the heat conducting oil to the measuring cylinder uniform, played the role of heat insulation. Note: before first use to raise the safety line of heat-conducting oil, otherwise it will damage the heating device.
   d) Electric warming type: the main pipe band plus a self-limiting temperature heating device, to play the role of heat insulation.

4. **High temperature high pressure model:**
   It's suitable for high temperature and high pressure level measurement occasions. The maximum process temperature is 520℃. The maximum working pressure is 32MPa.
5. **LED bi-color model:**

UHZ-D electronic color magnetic level gauge magnetic flap is a new generation of new products, it can clearly show the red and green beam of light level during the day and viewing distance 60m, the night up to 200 ~ 300m. Level gauge magnetic flap easy to stick deposited with the dust a long time, especially in steel mills, over time it is easy to stick deposited thin iron, the magnetic flap coverage of red and green colors, so that it can not see the level, the other Level gauge magnetic flap biggest drawback is not light show at night can not be observed. UHZ-D electronic color magnetic sub-level gauge to solve the above problem, a breakthrough in circuit design, measurement range of similar products on minor faults, while ensuring low power consumption, any measurement can be customized highly.

With magnetic flap / turn indicator column than its main features:

- LED display: red and green light beam clearly show the level, suitable for light application of dark places, night observation is more striking;
- Level shows a clear, bright color, observation angle, visible from far away, long-term use is not easy to stick deposited dust;
- Reasonable design, simple structure, easy maintenance, the measured medium and the display system completely separated;
- Media widely applied in hydrochloric acid, sulfuric acid and other corrosive solution measurement, has a good seal.

Main technical parameters

Temperature	≤ 300℃
Display color	Green gas red liquid
Visible distance	60m, 200 ~ 300 m at night
Power supply voltage	AC 220V (with adapter) or DC24V
Range	Requirements may be made according to the site

4. Limit control and signal transmission

1. The limit switch output.
   The main pipe in the level meter set by the user, the lower limit position outside the installation controller, the controller has to keep with the role of the magnetic switch from the use of magnetic float moves with the liquid level to make switching action, to achieve the alarm or limit control.

2. Signal transmission.
   Level gauge installed at the transmitter, the transmitter unit and a transmission unit by the measurement of two parts, which move up and down through the sub-Maglev, the magnetic coupling of the guide bar moves within the measuring cell in order to obtain resistance signal change, conversion Into 0 ~ 10mA or 4 ~

20mA standard current signal output, and digital display instrument or computer connection, to remote purposes.

5. Main Specifications

Technical parameters	Side-mounted				
	Basic model	Jacket model	High temperature High pressure model	Anti-corrosion model	
				Stainless Steel PTFE lining	Economy
Measuring range	200~6000mm, other sizes can be customized			200 ~ 4000mm	
Working pressure	0~4MPa	0.6-2.5MPa	0.6-32MPa	0.6-2.5MPa	0.6-1.6MPa
Operating temperature	-20~200℃	< 520℃		-20~200℃	-20~90℃
Medium Density	0.45-2.0g/cm^3			0.5-2.0g/cm^3	
Connection	Flange connection: DN20, DN25 or other (According to customer requirements). Threaded connections, welded pipe and other technology interfaces optional.				
Flange Standard	HG20592~20635-97, Other flange standards can be customized.				
Jacket Interface	/	DN20 or G1/2" Male	/	/	/
Material	1Cr18Ni9Ti, 316L			Stainless Steel PTFE lining	PPR,ABS,UPVC,PVC
Optional items	Liquid level switches, signal transmission, drain valve, the top vent valve, drain / exhaust bolts.				

Technical parameters	Top-mounted	Top-mounted Side display
Measuring range	200~5000mm	0~0.5m or 0~200m (Display can be segmented.)
Working pressure	0.6-2.5MPa	0-1.6MPa
Operating temperature	≤520℃	-20~500℃
Medium Density	0.5~2.0g/cm^3	≥0.7g/cm^3

Connection	Flange DN80, DN100, DN125, DN150.	Flange DN150
Flange standard	HG20592~20635-97, Other flange standards, please specify.	
Material	1Cr18Ni9Ti, 316L	
Optional items	Liquid level switches, signal transmission.	

Limit switch parameters

Control sensitivity	10mm
Contact capacity	AC220V, 2A
Contact life span	5×10^4 times
Explosion proof character	ExiaIICT4 intrinsically safety.

Signal transmission parameters

Accuracy	±1.5%F.S
Output load	750Ω
Output signal	4~20mA, DC24V 0~10mA, AC220V
Explosion proof character	ExiaIICT4 intrinsically safety.

6. Mounting, Installation, and Maintenance

1. Before installation:

A plastic tape was insert into the tube to fix the float for transportation purpose. Remove the plastic tape from the drain valve before installation.

2. Installation:

- Level meter must be installed vertically, to ensure the float in the main pipe can running up and down freely.
- Around the level gauge does not allow the main tube near the magnet, otherwise it will affect the level meter working properly.
- After installation, the flapper's white and red color may be mixed. Using the attached "calibrate magnet" to move along from the down to the up of the indicator outside the glass cover. So that the red flapper under the level, white flapper above the level.

3. Put into operation:

Before put the level meter into use, firstly open the up valve, and then slowly open the down valve, so that a smooth liquid medium flow into the main pipe. To

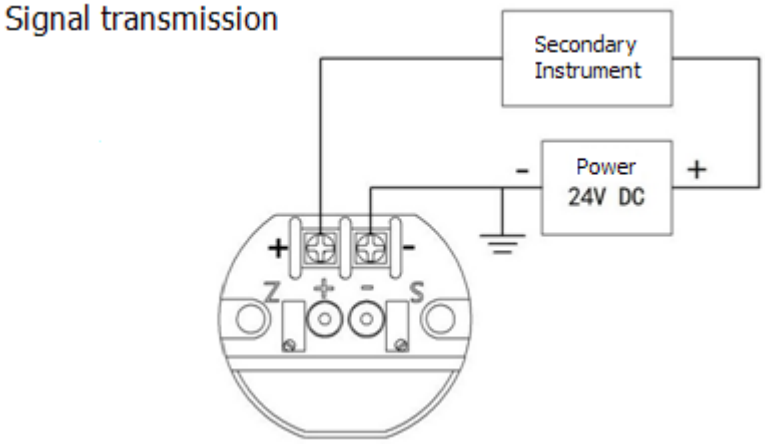
avoid the sharp rising liquid medium, which will cause the flapper failed to turn or turn chaos. In case turned chaotic, use “calibrate magnet” to recover it.

4. Maintenance

- Avoid impurity or solid materials flow into the tube, which may stuck the float or reduce float buoyancy.
- According to the media situation, open the drain valve to clear the sediments in the tube periodically.
- In case flapper chaotic during operation, use “calibrate magnet” to recover it.
- After years of use, especially after long-term used under high temperature, in case of flapper tracking is not flexible. Firstly check whether the float magnet demagnetization, if yes, replace the float.
- If need to replace the float, open the bottom flange and put into the new float. Should pay attention to make sure the magnetic side to up, do not reverse!

7. Wiring and output

1. 4~20mA transmission



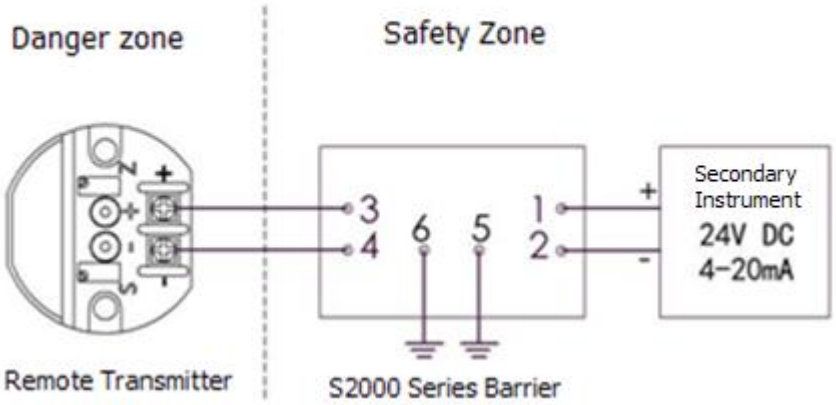
2. Limit switch output.

The limit switch use NO or NC reed switch inside.

3. Explosion proof model wiring.

Essential safety explosion proof type

Signal transmission



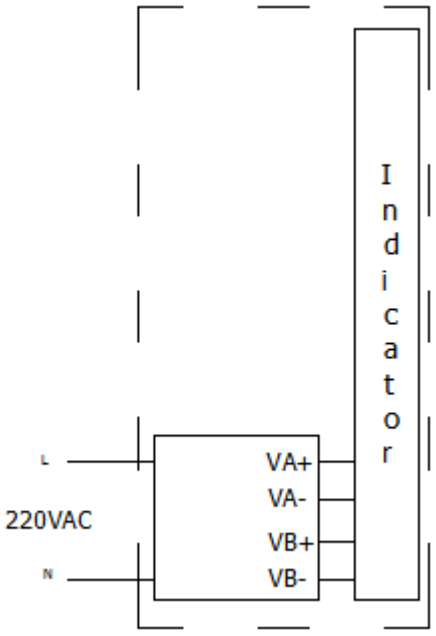
Note

1, The transmitter has an external shell, the user must be grounded.

2, The barrier should be used to comply with instructions about the content.

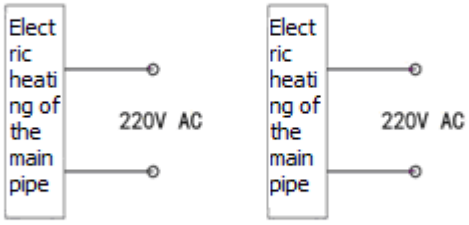
3, The transmitter and the barrier side of the connection cable for the two core shielded cable, wire cross-sectional area> 0.5mm2, allow the distribution of cable capacitance 0.8uF.

4. Electronic bi-color model wiring.



5. Electric heating model wiring.

Electric heating / electric heating sup system:



Electric heating, heat conduction oil filling method:
Took over from electrical heating layer side of the hole filling HTF to a safe line, not less than or exceed the safety line.

6. Quality Warranty

The company is in accordance with ISO9001-2000 quality system.

If user follow the instructed usage and storage specification, the product is with 1 year warranty begin from the date of delivery. The company provides free charge repair or replacement if product is in the scope of warranty such as bad quality. If damage caused by improper usage or storage, appropriate fee will be charged for repair.

The company provides life-long maintenance for this product.