YW05

Magnetic Level Gauge Manual



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Brief introduction

The liquid level gauge operates based on the principle of buoyancy and the principle of magnetic coupling. When the liquid level in the measured container rises or falls, the float in the main tube of the liquid level gauge also rises or falls accordingly. The permanent magnet inside the float transmits the magnetic coupling to the on-site indicator, driving the red and white flip columns to flip 180°. When the liquid level drops, the flip columns change from red to white. The boundary between the red and white on the indicator represents the actual height of the liquid level of the medium in the container, thereby achieving the indication of the liquid level.

The magnetic flap level gauge is a product developed and produced by the company after introducing and absorbing similar foreign products and making improvements. This product can achieve high sealing, prevent leakage, and safely and reliably measure liquid levels under conditions of high temperature, high pressure, high viscosity, and strong corrosiveness. The entire measurement process has no blind spots, with clear display and intuitive reading. Moreover, it has a wide measurement range. When equipped with liquid level alarm and control switches, it can realize upper and lower limit alarm and control of liquid level or interface level. When paired with LB type liquid level transmitter, The liquid level and interface level signals can be converted into linear 4~20mADC standard signals to achieve remote detection, indication, recording and control. The series of products are widely used in liquid level measurement and control in the production processes of various industries such as power, petroleum, chemical engineering, metallurgy, environmental protection, shipping, construction, and food.

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Side-mounted level gauge

Overview

The magnetic float level gauge produced by our company is suitable for measuring liquids in open or pressure vessels. This series of products can achieve high sealing, prevent leakage, and ensure safe and reliable measurement of liquid levels throughout the process under conditions of high temperature, high pressure, high viscosity, and strong corrosiveness. It features no blind spots, clear display, intuitive readings, and a wide measurement range.

Optional level switch to achieve upper and lower limit alarm and control of the liquid level.

An optional level transmitter sensor converts the level signal into a two-wire (4~20) mA standard signal to realize long-distance detection, indication and control.

This series of products are widely used in the production process of power, petroleum, chemical industry, metallurgy, environmental protection, shipbuilding, construction, food and other industries for level measurement and control.

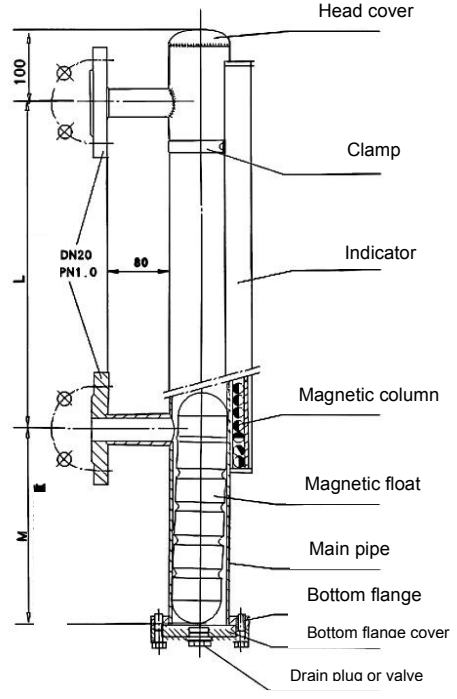
Structural principle

The structure of the level gauge is based on the bypass pipe principle, and the liquid level in the main tube is consistent with the liquid level height in the container equipment. According to Archimedes' theorem, the buoyancy and gravity generated by the magnetic float in the liquid are balanced, and the float floats on the liquid surface. When the liquid level in the measured container rises and falls,

The rotating float in the main tube of the level gauge also rises and falls. The permanent magnet inside the float drives the red and white flip column in the indicator to turn 180° through magnetic coupling. When the liquid level rises, the flip column changes from white to red,

When the liquid level drops, the column is changed from red to white. The boundary between red and white of the indicator indicates the actual height of the medium liquid level in the container, thus realizing the indication of the liquid level.

Characteristics



L:Measurement range
M:This length depends on the specific gravity of the liquid

Main technical parameters of the transmitter
Power supply: 24V DC
Output signal: (4~20) mA
Explosion-proof mark:
Intrinsically safe: ib II CT5
Explosion-proof type: dIIBT5
Maximum load resistance: 270Ω

Main technical parameters	technical requirement
Measurement range:(300~15000) mm	1. The heating jacket type level gauge can be selected for the medium that is easy to crystallize when the viscosity is large or the temperature is low.
Measurement accuracy; ±10mm	
Medium density:>0.45g/cm³	2. When the order length of the side-mounted level gauge is more than 4000mm, a support flange is added in the middle
Working pressure: 0.6,1.6,2.5,6.3,32MPa	
Working temperature: -90℃ ~ 480℃	3. Bottom-mounted or top-mounted level gauge connection flange> 80mm
Connection flange: HG20952-20635-97	
Other standards should be indicated by the user	Note: Special requirements can be specified at the time of order.

Liquid medium density and sediment cylinder distance (M) Comparison(reference data)

Liquid medium density (g/cm³)	The distance between the sinking cylinder and M (mm)	Typical liquid medium examples
0.45~0.80	450~600	Liquefied petroleum gas and liquid ammonia
0.61~0.74	300~500	Butadiene for petrol
0.75~0.85	250~300	Methanol light oil
0.86~0.99	220~250	Pentanol beer
1.00~1.10	200~220	Water acetic acid
1.11~1.25	170~200	Tar hydrochloride
1.26~1.39	160~170	Alkali 20% dilute sulfuric acid
1.40~1.59	150~160	Liquid chlorine, chloroform
1.60~2.00	120~150	98% sulfuric acid oil

Main technical parameters

Measurement range: 300~15000mm

Accuracy: ±10mm, ±16mm

Column diameter: 10mm, 16mm

Working pressure: ≤2.5MPa(> 2.5MPa can be designed separately) ,Anti-corrosion type less than 1.0MPa.

Medium density: ≥0.45g/cm³

Medium density difference: greater than or equal to 0.15g/m³ (measure the boundary)

Medium temperature: -20+250℃

Medium viscosity: ≤ 0.4Pa·S For media with high viscosity or media that are prone to crystallization at low temperature, heating jacket type level meter can be selected according to user requirements.

The size of the connecting flange at the factory is DN20, PN1.0 (metric pipe)

Connection flange: The latest HG20592 ~20635-97 flange standard issued by the chemical industry in 1988 is adopted. If other flange standards (such as GB, ANSI, DIN and so on) are used, please indicate them when ordering.

High pressure side-mounted magnetic level gauge is connected by flange HG20595-97 necked butt-welded connection flange DN25, PN4.0 with a sealing cover in the form of a protruding or convex surface.

For the main technical parameters of remote transmission supporting instruments, please refer to the relevant content in the company's selection data.

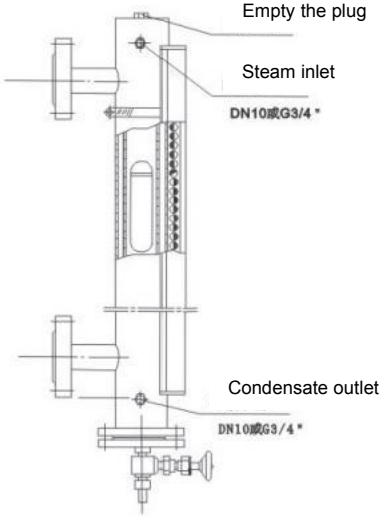
If there is any special requirement, you can negotiate when ordering.

Corrosion resistant materials

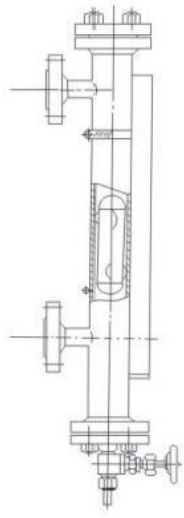
code name	name	scope of application
PVC	polyvinyl chloride	Water, sewage, slightly corrosive liquids
PP	sulan	Resistant to acids, alkalis, oils, oils and oil agents
PE	polytene	Resistant to acid, alkali, alcohol, gasoline, solvent
PTFE	teflon	Resistant to all chemicals
PVDF	Kynoar	Oil and grease, acid and alkali, solvent resistant
PUR	PU	Nuclear fuel, hot oil and oily liquids
PA	eurelon	Oil, grease and solvent resistant

Comparison table of commonly used stainless steel materials at home and abroad

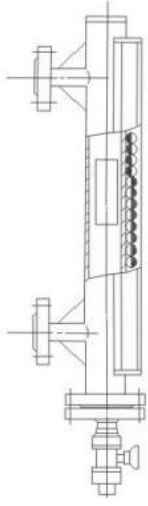
Germany	America	Japan	China
1.4783	321	SUS321	1Cr18Ni9Ti
1.4571	316Ti	--	OCr18Ni2Mo2Ti
1.4401	316	SUS316	OCr17Ni12Mo2
1.4435	316L	SUS316L	00Cr17Ni14Mo2
1.4301	304	SUS304	OCr18Ni9



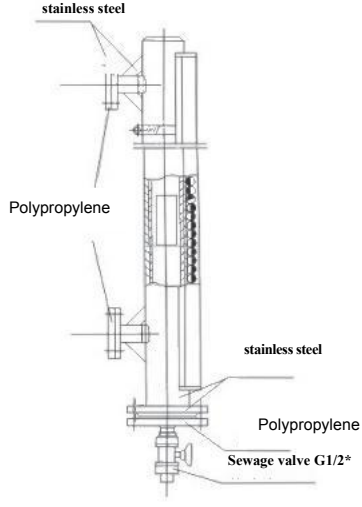
Jacketed type



High voltage type



Corrosion resistant



Corrosion resistant special type

• Order Instructions (Please provide the following data when placing an order)

· Type
· Name and density of the measured medium
· measuring range
· Flange standard and connection form
· working pressure
· medium temperature
· Supporting instruments and accessories
· special requirements

• Application notes

· Auxiliary instruments and accessories for side-mounted magnetic level meters are shown in the relevant chapters of this selection data.

· The mating flange on the user equipment should ensure the shape and position tolerance during manufacturing and welding, otherwise it will affect the installation and use.

The 'M' in the shape structure diagram represents the 'sinking tube distance' of a side-mounted magnetic level gauge. This is a crucial parameter that users must understand. According to Archimedes 'principle, the length of the magnetic float depends on the density of the measured liquid medium. The lighter the liquid, the longer the magnetic float, and consequently, the longer the' sinking tube distance 'from the main pipe to the bottom of the measuring tube. Conversely, the denser the liquid, the shorter the magnetic float and the' sinking tube distance. 'To assist designers and users in correct design, use, and installation, a table comparing typical liquid densities with their corresponding' sinking tube distances' is provided for reference.

• Installation, use and maintenance

· In order to prevent the magnetic float from being hit by high-speed movement in the main pipe during transportation, the magnetic float is fixed at the lower suction pipe with a card wire before the liquid level meter leaves the factory. Users should first remove the card wire before installation and use.

· The level gauge must be installed vertically to ensure that the magnetic float can move freely up and down in the main tube.

· A stop valve should be installed between the level gauge and the container to cut off the material during cleaning and maintenance.

· Magnetic conductors are not allowed to be close to the cylinder of the level gauge, otherwise it will directly affect the normal operation of the level gauge.

· After the installation of the level gauge, it needs to be corrected with a magnet and guided by the magnetic column once so that the display is red below the zero position and white above the zero position.

· When the level gauge is put into operation, the valve of the upper lead pipe should be opened first,
Then slowly open the valve of the lower liquid pipe to let the liquid medium enter the main pipe smoothly, so as to avoid the rapid rise of the liquid medium with the float, resulting in the failure or disorder of the magnetic column (if this phenomenon occurs, the magnetic steel can be used to correct it again).

· When opening the blind plate of the bottom flange and installing the magnetic float, attention should be paid to the magnetic end with the heavy end facing upward, and it cannot be inverted!

· There should be no solid impurities and magnetic impurities in the cylinder of the level gauge to avoid the float being blocked and the buoyancy weakened.

· According to the condition of the medium, the discharge valve should be opened regularly to clean the main pipe and remove the sediment in the pipe.

Corrosion resistant magnetic float level gauge

• Scope of application

The corrosion-resistant magnetic float level gauge, designed for environments with high corrosive media and high operating temperatures, features an advanced stainless steel-lined PTFE extension flange process. This design ensures a reliable structure and a long service life. The corrosion-resistant model uses a combination of UPVC and PP pipe fittings, making it suitable for general acidic and alkaline solutions with moderate operating temperatures. However, it is not suitable for aromatic compounds, hydrogen sulfide, ketones, esters, or other similar liquids.

• technical parameter

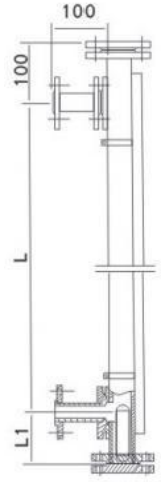
Measurement range: 300~6000mm (center distance of two flanges)

Working pressure: ≤ 2.5MPa

Working temperature: ≤200℃

Medium density: 0.45~2.0g/cm³

Flange standard: HG20592-20635-97
Other flange standards should be indicated by the user
Material: stainless steel lining polytetrafluoroethylene, PP, PVC
Float; polytetrafluoroethylene, PP, PVC
Please indicate other material requirements



graph 1

High pressure magnetic float level gauge

Technical parameters

Measurement range: 300~6000mm (the distance between the two flange centers)

Working pressure: ≤ 32MPa

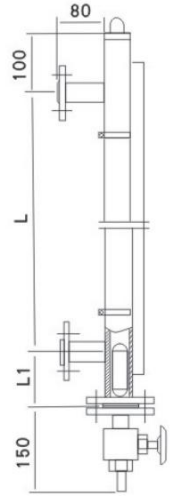
Working temperature: ≤ 480℃

Medium density: 0.5~2.0g/cm3
Material: Stainless steel 304316L
Float; titanium
Please indicate other material requirements
Connection mode: side flange is installed on the bypass

DN	15		
PN	16	22	32
Standard number	H_{12}-0-2		H_{12}-2-3

· Application

The high-pressure magnetic float level gauge is suitable for liquid level measurement in high-temperature and high-pressure environments, with a maximum temperature of 480℃ and a maximum working pressure of 32MPa.



graph 2

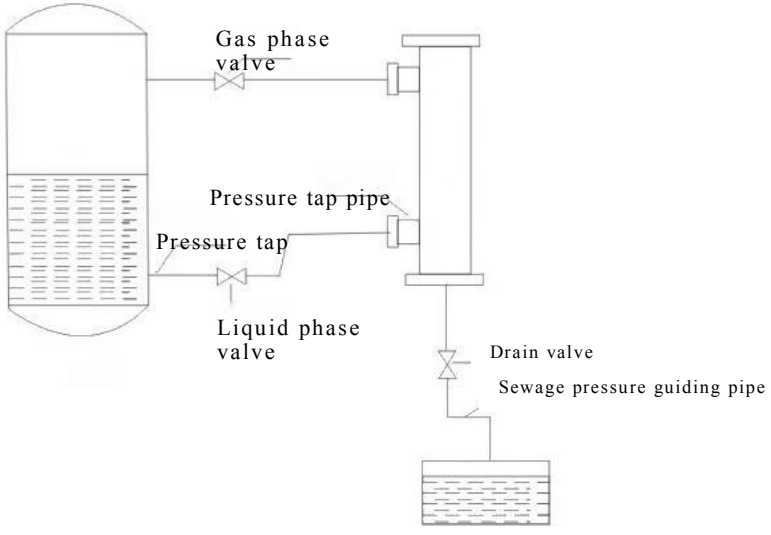
• **Precautions for installation and use**

I. Because the high-pressure level gauge is installed on the high-pressure container of 16~32MPa, so attention should be paid to the installation:

1. Pressure grade and quality of valves and flanges

2. The liquid phase pressure pipe of the level gauge should be slightly higher than the pressure taking port to form a slope to ensure that the liquid in the level gauge can flow back to the equipment. (Figure 3)

3. The sewage pressure guide pipe should be introduced into the underground tank or other receiving containers. The sewage pressure guide pipe must be fixed to prevent the sewage pressure guide pipe from popping out due to excessive pressure difference during sewage discharge, resulting in injury accidents.



graph 3

2. Precautions for use

1. Before the liquid level gauge is put into use, all welding joints, flanges and valves should be tested for pressure and leakage to eliminate any leakage.

2. When putting into use, the gas phase valve should be slightly opened first to make the pressure in the equipment and the pressure of the level gauge equal, and then the gas phase valve should be opened point by point to make the gas phase pressure in the equipment enter the level gauge smoothly.

3. After completing (2), open the liquid phase valve point by point, but the column must be controlled to rise slowly and steadily, and then open point by point until the liquid can enter the level meter smoothly.

4. When discharging sewage, the liquid phase valve should be closed first, the gas phase valve should be slightly open, and then the discharge valve should be opened point by point.

5. Zero calibration time of remote level meter:

When ensuring the zero position of the level gauge is correct, since flat glass level gauges are not allowed in high-pressure vessels (16~32MPa), the user must confirm that the liquid level in the equipment has dropped below the liquid phase valve. Then, calibrate the zero position of the level gauge. If the level gauge does not indicate zero (electrical indication 4mA), adjust the zero potentiometer to synchronize the on-site flip column with the indication.

6. It is strictly prohibited to open the liquid phase valve first and then open the gas phase valve when putting into use.

Top mounted magnetic level gauge

• summary

The top-mounted magnetic level gauge produced by our company uses a float as the measuring element. The magnetic coupling between the magnet at the top of the connecting rod and the liquid level change transmits the information to the indicator, which is displayed in the form of a flip or column. This allows the indicator to clearly display the liquid level height. Since the on-site indication part of this level gauge is completely isolated from the measured medium, it offers clear and convenient liquid level indication, ensuring safety and reliability, and is resistant to high-pressure and corrosive environments. This level gauge is suitable for various applications, including underground tanks, boxes, pools, and containers, as well as those that are not suitable for side openings.

If the level gauge is equipped with the remote transmission instrument produced by our company, it can realize long-distance indication, detection, recording and control.

• Structural principles

The level gauge is developed based on the principle of buoyancy and the magnetic coupling effect of magnets. When the liquid level in the container rises or falls, it drives the float ball. The permanent magnet at the top of the connecting rod transmits this movement to the on-site indicator through magnetic coupling. When the liquid level rises, the flip column changes from white to red; when the liquid level drops, the flip column changes from red to white,

The red and white boundary of the indicator is the actual height of the medium level in the container, so as to realize the liquid level indication.

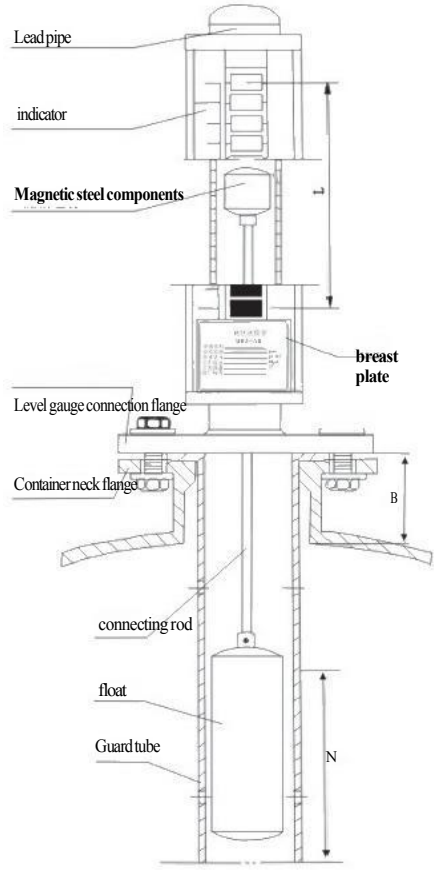
• characteristic

· When it is not suitable to open the container on the side or it is inconvenient to observe the liquid level, the level gauge can be installed at the top and bottom of the container.

· Suitable for viscous liquid media.

· The direction of the indicator can be changed arbitrarily.

· Other features are the same as those of the side-mounted magnetic level gauge.



B: Container interface neck height (mm)

L: Range (mm)

N: Blind area (mm)

• Main technical parameters

· Measurement range: 300~5000mm

Accuracy: ±10mm, ±16mm

· Flange diameter: 10mm, 16mm

· Working pressure: ≤2.5 Mpa

(Design can be made separately above 2.5Mpa)

· Medium density: ≥0.45g/cm³

· Medium density difference: ≥0.15g/cm³ (measured interface)

· Medium temperature: -20~+250℃

· Medium viscosity: ≤0.4Pa.S

· Environmental vibration: frequency ≤ 25Hz

Amplitude ≤ 0.5mm

· Connection flange: adopt the latest chemical industry implementation HG20592~20635-97 flange standard, if other standards (such as GB, ANST,Please indicate DIN and other standards when ordering.

· The size of the connecting flange of the company is DN100, PN1.0 (metric pipe)

· For the main technical parameters of the remote transmission supporting instrument, please refer to the relevant content in this selection data.

· Special requirements can be negotiated at the time of order.

• Instrument selection and precautions

· Process connection flanges are manufactured according to the latest HG20593-97, HG20600-97 pipe flange standards issued by the Chemical Industry Department with special requirements
It can be negotiated at the time of order.

· The nominal pressure of the anti-corrosion type level gauge is less than or ≤1.0Mpa.

· The magnetic level gauge has a certain blind area during measurement. If you need to read the true liquid level height value, you should add the number of blind area Value compensation (when the level meter is manufactured, the zero mark of the scale has been transferred to the actual value).

· The measuring range of the level gauge should not be too long when selecting the level gauge, generally not more than 5m, otherwise it will affect the stability and reliability of the level gauge.

• Blind zone of top-mounted magnetic level gauge

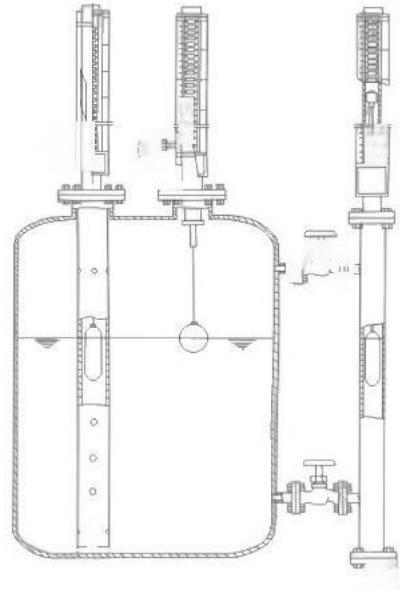
The top-mounted magnetic level gauge has a certain blind zone value (marked as N in the figure) due to its structural design when measuring liquid levels. This blind zone value needs to be compensated for during reading. The float length designed by our company varies depending on the density of different media, resulting in varying blind zone heights. When ordering the level gauge, users should be aware of this to ensure proper use and maintenance.

• Table of relationship between blind area and liquid medium density

fade zone N (mm)	Density of medium (g/cm')
650	0.45-0.60
400	0.61-0.74
380	0.75-0.85
350	0.86-1.10
330	1.11-1.25
300	1.26-1.39
250	1.40-1.59
200	1.60-2.00

• Structural style

sheathed pipe unshielded pipe **bypass pipe**



• Top-mounted magnetic level gauge installation flange

· In order to facilitate design and use, the company lists the commonly used protruding surface (RF) dimensions when the company is out of the company for reference.

· The mating flange on the user equipment should pay attention to ensure the shape and position tolerance during manufacturing and welding, otherwise it will affect the installation and use.

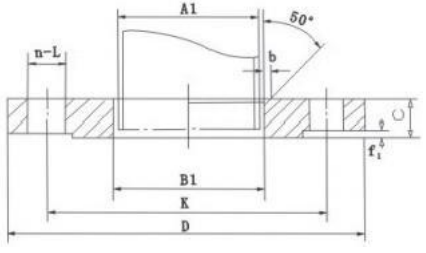
· The following chart lists the specific specifications and dimensions of DN100 and PN1.0, PN1.6, PN2.5 flanges.

· A and B in the table are two series of outer diameters of steel pipes

A: It is a series of steel pipes widely used in the introduced devices in recent years, commonly known as "British pipe"

B: The series of steel pipes widely used in various industrial departments in China is commonly known as "metric pipe"

Flanged butt-welded steel pipe flange (HG20593-97)



DN	pressure (MPa)	A	B	D	K	L	n	Th	C	A	B
100	1.0 1.6	14.3	108	220	180	18	8	M16	22	116	110
	2.5	14.3	108	235	190	22	8	M20	26	116	110

• Installation, use and maintenance

· The installation of the guide pipe for the level gauge must be kept vertical.

· When installing the level gauge, the connecting rod should not be bent and must be installed straight.

After the level gauge is installed, the magnetic flip column of the indicator should be guided once using the attached magnet. This ensures that the area above the zero position displays white, while the area below the zero position shows red (in the case of an empty tank, if there is liquid inside, the liquid level section will display red, and the non-liquid level section will display white).

· Order Information (Please provide the following data when placing an order)

· Model specifications, supporting instruments and accessories

· measuring range

· Name and density of the measured medium

· Medium pressure

· medium temperature

· Material requirements

· Flange standard and connection form

· Accessories requirements

Auxiliary device LR/LB series level transmitter

• summary

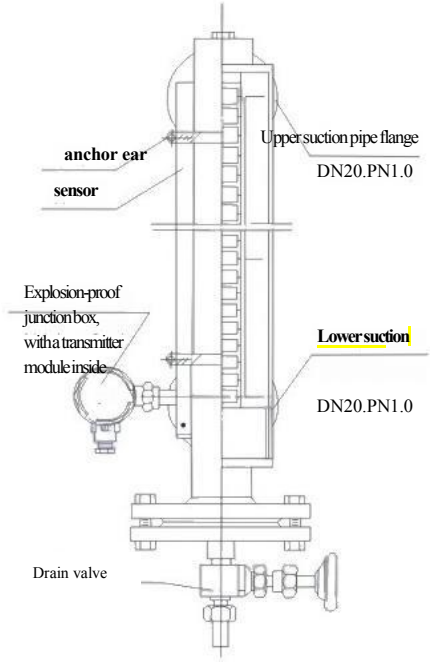
•LR series level transmitter

As a companion instrument for side-mounted and top-mounted magnetic level meters, it uses clamps to secure the sensor part of the level transmitter to the outer side of the main pipe of the magnetic level meter, ensuring it is in the same magnetic coupling as the level meter. In the system, the reed switch in the sensor converts changes in the liquid level position into a resistive signal output, which can be directly integrated with the digital display produced by our company to achieve long-distance detection, alarm, and control of the liquid level.

· LB series level transmitter

The key difference between the LB series and LR series level transmitters is that the LB series, built upon the LR series, features an integrated transmitter circuit module installed in the junction box. This module converts resistance signals into a two-wire 4-20mA standard signal, which can be easily integrated with electric Type III instruments or DCS systems for long-distance detection, alarms, and control. Additionally, it can be used with our company's digital display meters.

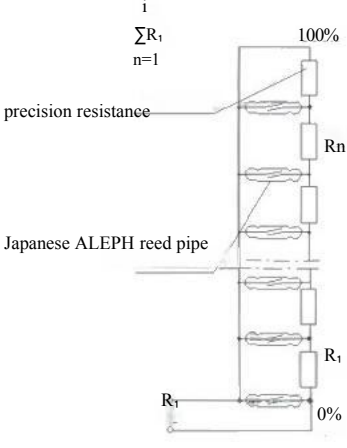
Due to the integrated transmission module, solid packaging, high integration, power reverse protection, low power consumption, vibration protection and other characteristics, the working is stable and reliable, long life.



When the magnetic float inside the magnetic level gauge moves up and down, the magnetic coupling causes the reed switches inside the sensor to move sequentially, generating a changing resistance signal. This signal is then output as a resistance signal or converted into a 4~20mADC current output through a module. The sensor part of the LR/LB series level transmitters uses Japanese ALEPH reed switch tubes, which effectively addresses the issue of magnetization that can cause malfunction in similar products over long-term use,

Problems with accurate detection of liquid level.

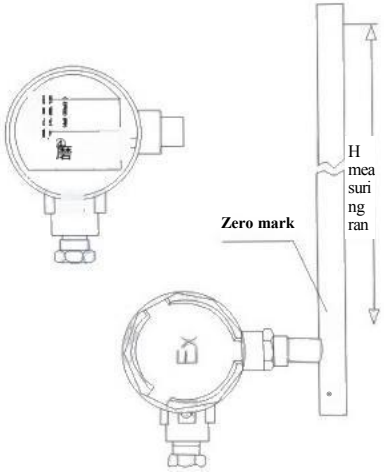
• Structural principles



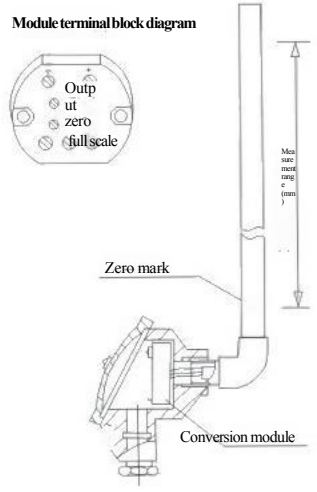
• characteristic

Simple structure, easy installation, reliable performance, corrosion resistant, explosion-proof.

• Explosion-proof liquid level remote transmitter structure diagram



• General type liquid level remote transmitter structure diagram



• Main technical parameters

· Accuracy: ±1.5% (H≥1000mm) ±
2.5% (H<1000mm)

· Measurement range: 30015000mm

· Output signal: LR: change of resistance quantity
LB: 4~20mADC for the second line

· Working temperature: -10∞+80℃

Transmission distance: 1000m

· Explosion-proof mark: flameproof type: Exd II BT406
Intrinsically safe: Exia II CT46

• shakedown test

Side-mounted (top-mounted) magnetic level meter and LR/LB type bundle, the remote transmitter is fixed together with a clamp after being calibrated and verified before leaving the company. Users can carry out overall debugging before installation.

The position indicated by the mobile magnetic float and indicator should correspond to the transmitter's output. Alternatively, the transmitter can be removed for individual debugging. To do this, place a magnet at the zero mark on the sensor of the transmitter; the output should be 4mA. Move the magnet to the full-scale mark on the sensor and note that the output is 20mA. If the zero or full-scale readings are off, adjust the zero and range potentiometers, making repeated adjustments until the required settings are achieved. After the transmitter is individually debugged, reattach it to the outside of the main pipe of the level gauge using a clamp. It is crucial that the centerline of the liquid lead pipe of the level gauge aligns with the zero mark on the indicator scale and the zero mark on the sensor of the transmitter.

• Purchase instructions

· There are three types of junction box: ordinary type, flameproof type and intrinsically safe type.

Auxiliary device LK series level controller

• summary

The LK series level controllers, designed to complement our side-mounted and top-mounted magnetic level meters, are installed closely alongside the magnetic level meters, forming part of the same magnetic coupling system. The magnetic float causes the reed switch inside the controller to move, generating an open or closed contact signal. When paired with the corresponding control circuit, this level controller can effectively manage and alarm on liquid levels in various settings.

• Main technical parameters

· Control height: can be selected at will within the measuring range of the main magnetic level meter

· Working temperature: -10~+80℃

· Control error: ±10mm

· Output contact capacity: AC220V,1A (resistive load)
DC24V,0.5A

· Control contact life: $5x10^4$ times

· Explosion-proof mark: Intrinsically safe: Exia IICT4~6
Explosion-proof type: Exd II BT4~6 (limited to DC24V)

· Protection class: IP65

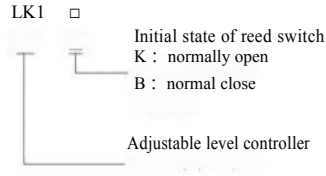
· Outgoing interface thread: M20×1.5 internal thread

• There are two types of LK series level controllers

I. LK1 type adjustable level controller (one control point An adjustable level controller)

The level controller is produced for the convenience of users. In the process of use, users can adjust the height of the up and down moving control switch at will according to their needs until the set control point is reached.

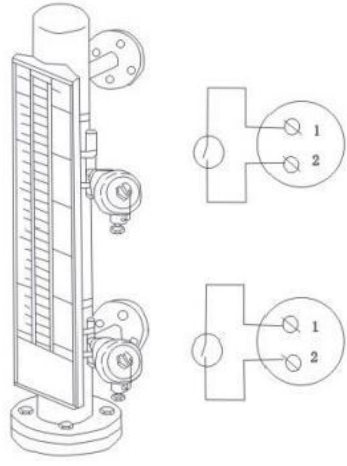
• Selection mark



• Examples of selection

LK1-K: A dry contact with an adjustable liquid level controller that is normally open at the initial state

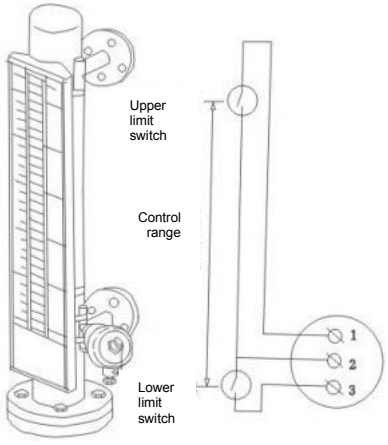
•LK1 external structure installation diagram



LK2 type positioning level controller

The level controller controls the height and switch signal according to user requirements. The height and switch signal are determined when the product leaves the company (usually high and low dual-point positioning level control switches), and are fixed on the outside of the main pipe with a clamp attached to the side or top magnetic level meter.

•LK2 external structure installation diagram



• Selection examples

LK2-500K/1200B positioning level controller, the first control point is at 500mm, the switch is normally open. The second control point is at 120 Omm, the switch is normally closed.

• matters need attention

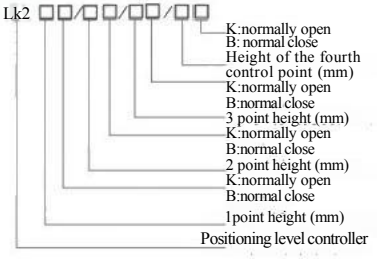
Because the LK series level controller uses the on-site switch

The current is very small, in order to make the control switch more reliable and safe

The control signal can be transmitted through the UD-1 converter amplifier for both accuracy and practicality

Drive the contact action of JTX type small general high power relay to realize the electrical control and interlock of liquid level (our company can provide relevant products)

• Selection mark



Note: The control point sequence set by L10L4 is consistent with the scale of the magnetic level gauge, from bottom to top

Insertion magnetic level transmitter

• summary

• UR series plug-in magnetic level transmitter

The level transmitter uses the ring magnetic float to rise or fall with the level, so that the reed switch in the sensor lead pipe is attracted, and the level is converted into the corresponding resistance output. This signal can be directly matched with the digital display produced by our company to realize the remote detection, alarm and control of the level.

•UB series plug-in magnetic level transmitter

The level transmitter is an enhancement of the UR series level transmitter by integrating a transmitter circuit module into the junction box. This module converts the resistance signal into a two-wire 4~20mA standard signal for output. The signal can be easily integrated with electric Type III instruments or DCS systems, enabling long-distance detection, alarms, and control. It can also be used in conjunction with the digital display meters produced by our company.

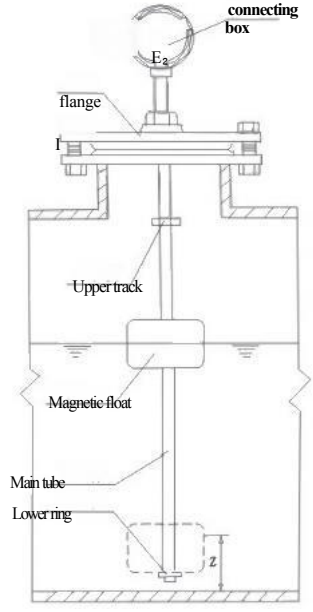
Insertion magnetic level transmitter is suitable for chemical, electric power, paper, food, environmental protection and urban construction industries, used in open, dense, closed containers for the measurement of liquid level of media, especially for underground storage tank, pool and high-rise water tank level measurement.

The insert magnetic level transmitter is made of stainless steel and other corrosion-resistant materials, and has explosion-proof function, so it can be used in corrosive, flammable, explosive places.

• Structural principles

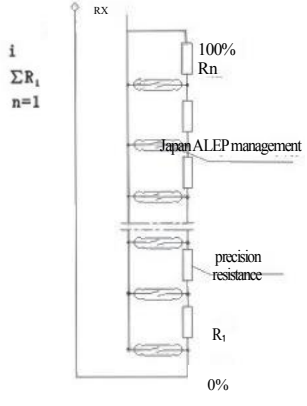
The sensor's leading tube is equipped with a group of reed switches and precision resistors. When the magnetic float outside the tube changes with the liquid level, the reed switches inside the leading tube are sequentially connected at the liquid surface to change the resistance value of the sensor. The conversion circuit module in the junction box converts the resistance value into current output.

Structure and form



Blind zone N <150mm

• Working principle of the sensor



• Instrument shape structure

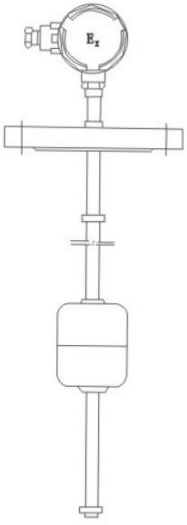


Figure 1

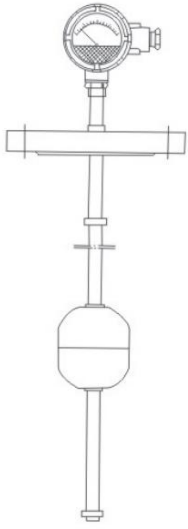


Figure II

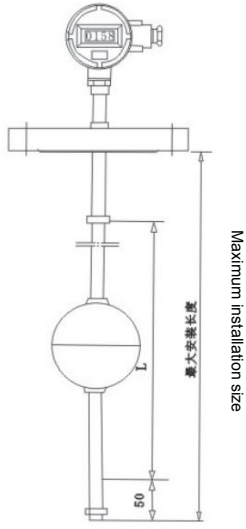


Figure III

• Main technical parameters

· Measurement range: 300~6000m

· Accuracy: ±1.5% (H≥ 1000mm) ±2.5% (H<1000mm)

· Transmitter power supply: 24VDC (UB)

(24VDC power supply can be provided with our digital display meter)

· Transmitter output: 4020mADC two-wire (UB)

· Transmitter power consumption: less than 720mW

· Medium temperature: -10~80℃

· Medium density: ≥0.45g/cm³

· Working pressure: <1.6MPa

· Connection flange size: DN100 DN80 DN50

· Explosion-proof mark: flameproof type: ExdIBT4~6
Intrinsically safe: Exia II CT4~6

· Protection class: IP65

• characteristic

· Simple structure, easy installation, reliable operation, simple maintenance, cheap price.

· Wide range of applications, suitable for the measurement of liquid level in various media.

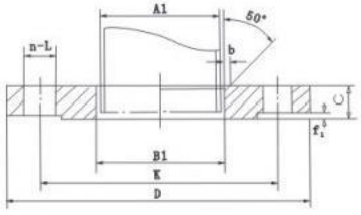
· The instrument can not only output 420mA two-wire current signal, but also select LCD display or pointer indication on site, which is convenient for instrument debugging and field detection.

· The sensor part of the level gauge adopts Japanese ALEPH (ALEPH) reed switch tube, which solves the problem that the magnetization cannot be normal and accurate detection of liquid level after long-term use of similar products.

• adapting flange

· Process connection flanges are manufactured according to chemical HG20593-97 pipe flange standard, special requirements can be negotiated at the time of order.

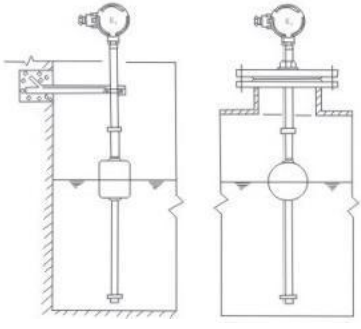
· For the level transmitter connected by flange, the flange size of our company is DN100, DN80 and DN50. The user's container flange must be matched with it (the matching flange can also be provided by our company).



Flanged butt-welded steel pipe flange (HG20593-97)

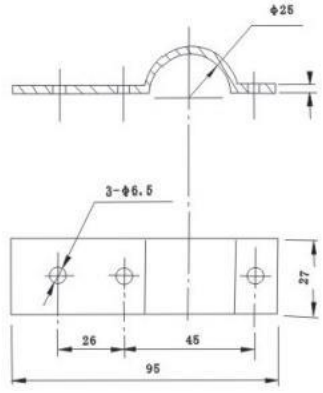
DN	pressure (Mpa)	A	B	D	K	L	n	Th	C	A	B
100	1.0 1.6	114.3	108	220	180	18	8	M16	22	116	110
80	1.0 1.6	88.9	89	200	160	18	8	M16	20	90.5	91
50	1.0 1.6	60.3	57	165	125	18	4	M16	20	61.5	59

• Installation form



Mount and fix　　Flange fix

· Size diagram of stainless steel Ω clamp for mounting and fixing (provided by the factory)



• Installation, use and maintenance

· The installation position of the level transmitter should be correctly selected in the liquid wave, small movement, avoid or far away from the inlet and outlet of the liquid medium, reduce the impact of the fluid on the sensor part of the level transmitter.

· The range of the level transmitter is more than 3 meters, and the bottom of the pipe must be positioned.

· When the level transmitter is mounted and fixed, the angle iron bracket and the installation parts should be treated for corrosion resistance.

· When the level transmitter is mounted and fixed, users can use a single angle iron bracket or two upper and lower angle iron brackets to fix it according to the actual situation.

· The file must be installed firmly to avoid measurement failure or magnetic float detachment.

• Order instructions (Please provide the following data when placing an order)

· specifications and models

· measuring range

· Name and density of the measured medium

· Flange standard and installation form

· medium temperature

· working pressure

· special requirements

Insertion magnetic level controller

• summary

The plug-in magnetic level controller outputs the switch signal of the level. The product, together with the corresponding circuit, can be used for the level control and alarm of various open or closed containers such as petroleum, chemical industry, textile, printing and dyeing, environmental protection, civil construction, etc.

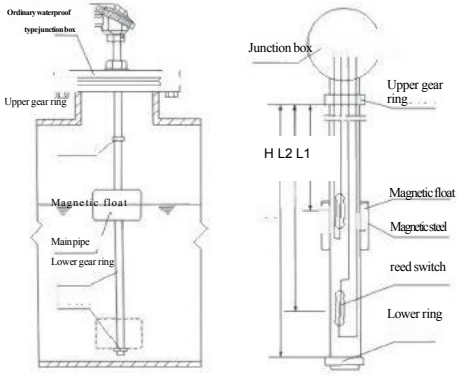
• characteristic

· Simple structure, easy installation, reliable operation and simple maintenance.

· Wide range of applications, suitable for a variety of media level control.

• Structural principles

The magnetic float is used to rise or fall with the liquid level, so that the sensor detects the action of the reed switch at the set position in the tube and sends out the contact open (close) switching signal. The magnetic float is used to rise or fall with the liquid level, so that the sensor detects the action of the reed switch at the set position in the tube and sends out the contact open (close) switching signal.



• Main technical parameters

· Precision: ±10mm

· Control height: 300~6000mm

· Connection flange size: DN100, DN80, PN1.0 (flange connection)

• Anti-explosion mark

Explosion-proof type: Exd II BT4~6 (for 24VDC only)

Intrinsically safe: Exia ⅱ CT4~6

· Control contact capacity: AC220V,1A (resistive) DC24V,0.5A

· Control contact life: $5x10^4$ times

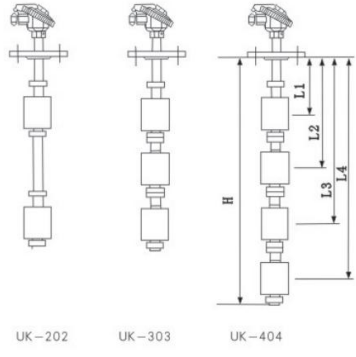
· Control contact number: 1, 2, 3, 4 points at will (more than 4 points can be specified in the order).

Thread of outlet connector: M20×1.5 inner thread.

Product selection marks (Table 1)

model	content	
UK-101	Single magnetic float, 1 control point	
Uk-102	Single magnetic float, 2 control points	
UK-103	Single magnetic float, 3 control points	
UK-104	Single magnetic float, 4 control points	
UK-10X	Single magnetic float, x control points	
UK-202	Two magnetic floats, two control points	refer to lower tracing
UK-303	3 magnetic floats, 3 control points	
UK-404	Four magnetic floats. Four control points	
UK-x0X	X magnetic floats, x control points	

· Structural form (French connection)



Order Information (Please provide the following data when placing an order)

· Specifications and models (refer to Table I and Table II)

· Range and control height

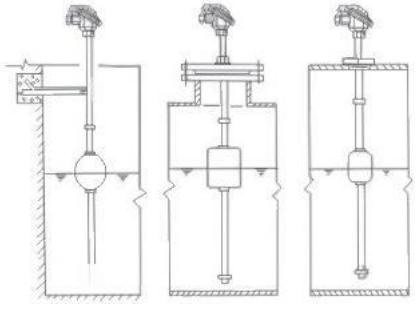
· working pressure

· working temperature

· Material requirements

· special requirements

• Installation form



Mounting is fixed flange is fixed thread is connected

• Installation, use and maintenance

· The installation position of the level controller should be correctly selected on the liquid, with small fluctuations, and avoid or stay away from the inlet and outlet of the liquid medium, so as to reduce the impact of the medium fluid on the sensor part of the controller.

· The file must be installed firmly to avoid measurement failure or magnetic float detachment.

· The connection flange of the level controller must be paired with the user's container flange.

• Application notes

· In the case of liquid medium containing suspension, impurity and paramagnetic material, the float will be blocked, so this magnetic level controller should not be used in this case.

· For magnetic level controllers with flange connection, our company adopts the chemical industry department HG20592-20635-97 pipe flange standard. If other standards or special requirements are adopted, they can be indicated in the order.

· The company can supply liquid level control box and control cabinet according to user needs.

In order to make the control switch contact signal and electrical control system more reliable, safe and practical, we recommend to users to use UD-1 conversion amplifier and JTX type small general high-power relay. In this way, the switch current through the field controller can be reduced to a very small,

The relay can also be connected to high power loads. (Our company can provide relevant products)