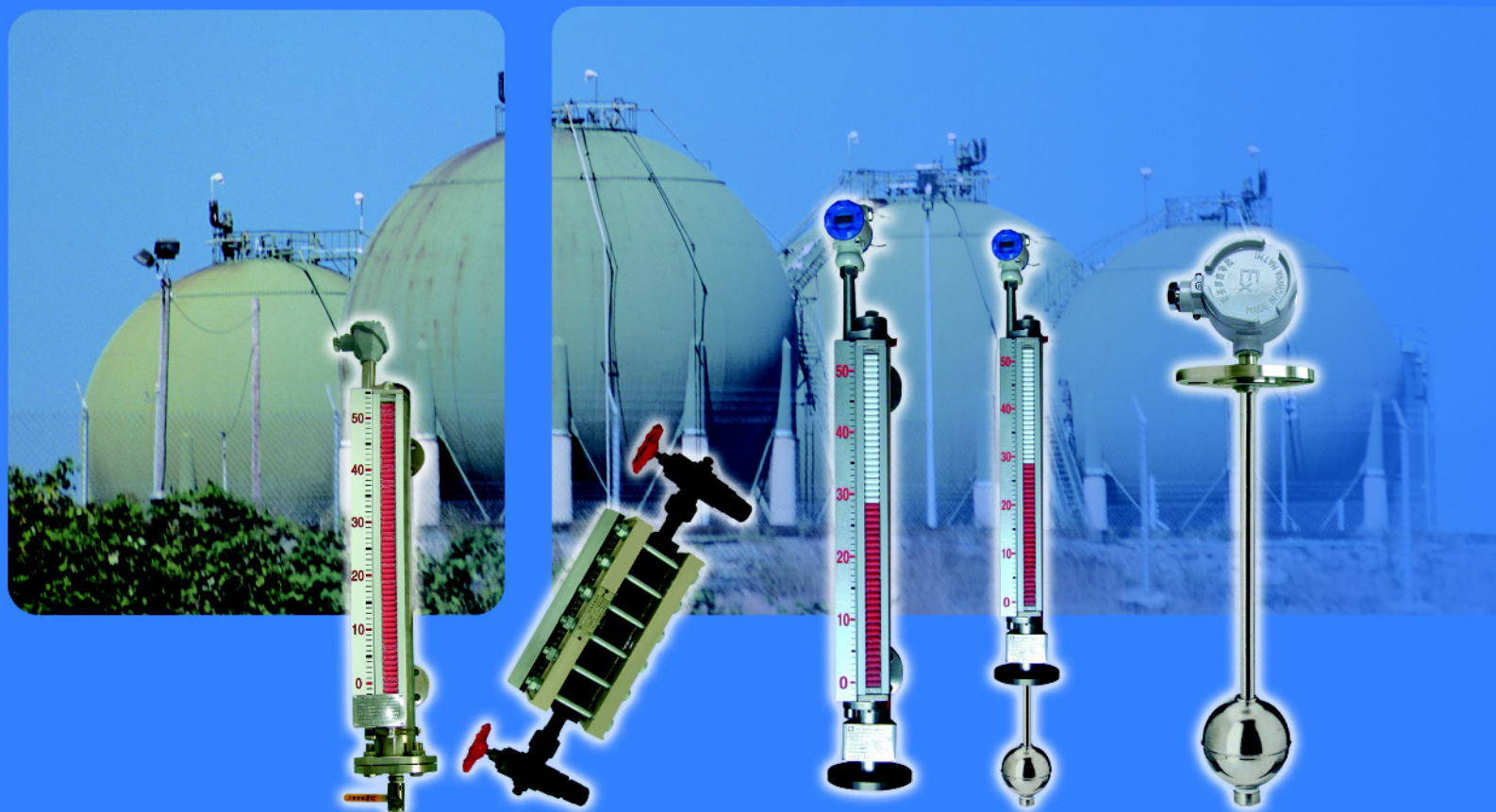


# 物位仪表系列

## 产品选型样本



**安徽天康(集团)股份有限公司**  
ANHUI TIANKANG(GROUP)SHARES CO.,LTD.

# **Brief Introduction to Anhui Tiankang (Group) Shares Co.,Ltd.**

## **企业简介**

安徽天康（集团）股份有限公司位于安徽省东部,南接江苏省会南京,东与古城扬州相邻,地处中国最具活力的“长三角”经济圈,具有良好的发展环境。

安徽天康（集团）股份有限公司由安徽省天长市仪表厂、安徽省天康光电有限公司、安徽省天康药业有限公司、安徽省天康医疗用品有限公司等企业整体改制成立,属国家大型工业企业、国家级“重合同守信用”企业、安徽省重点骨干企业、安徽省高新技术企业。

安徽天康（集团）股份有限公司下属的安徽省天长市仪表厂,作为原国家机械部和化工部过程控制仪表的定点生产

厂家,自1974年开始生产过程控制仪表,至今已走过三十多年的发展历程,积累了丰富的开发和生产过程控制仪表的技术和经验,目前过程控制仪表的年生产能力已达到150万支(台、套)。主要产品有:温度仪表系列、压力仪表系列、物位仪表系列、流量仪表系列、控制阀系列、智能数显仪表系列等数百个品种,产品广泛应用于炼油、化工、电力、水泥及钢铁等行业。

安徽天康（集团）股份有限公司享有自营进出口权,并顺利通过ISO9001国际质量体系等认证。由于始终秉承“质量第一”的发展宗旨,企业不但获得了诸多荣誉,也赢得了无限商机,其中“天仪”商







标获得了“安徽省著名商标”，“天仪”牌过程控制仪表多次被评为“省优”和“部优”产品及“安徽省名牌产品”，企业也先后与数百家电力、炼油、水泥及钢铁等行业单位建立了长期的合作伙伴关系，并为秦山核电站、田湾核电站、华能玉环电厂、国电泰州电厂、扬子石化-巴斯夫有限责任公司、上海赛科石油化工有限责任公司、齐鲁石化、茂名石化、海螺水泥、华新水泥、马鞍山钢铁公司、上海宝钢等工程等一批国内重点工程，以及越南协福电厂、越南 Vigacera 玻浮法玻璃厂、伊朗阿拉克电厂、

苏丹喀土穆炼油厂等众多国外重点工程项目提供了大批优质过程控制仪表。

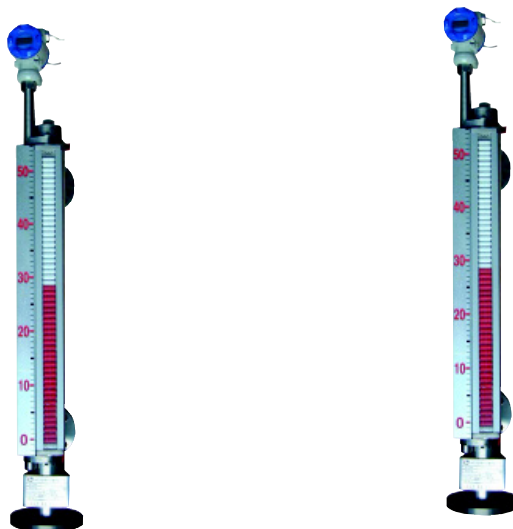
用户的支持就是我们的成功，安徽天康（集团）股份有限公司董事长赵宽携全体员工衷心感谢社会各界及广大用户长期以来的关心和支持，我们也将倍加努力地为您提供更加优质的产品和更为满意的服务；我们也愿与您真诚携手，共同开创美好未来。



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# UHZ-50/C 型系列侧装式磁性浮球液位计

## UHZ-50/C Type Series of Side-mounted Magnetic Floating Ball Liquid Level Indicator



### 功能与适用范围

UHZ-50 型磁性浮球液位计 (以下简称液位计)。用于工业过程中各种承压 (或敞开) 贮液设备 (塔、缸、槽、球形容器和锅炉) 的液体介质的液位检测。能就地显示各种液体的工作情况和液位高度。配上液位变送器就能远距离传送液面的位置信号。通过一定的电气装置达到自动控制和测量液位的目的。

液位计是具有可靠的安全性的检测仪表。由于具有磁性藕合的隔离密闭结构。尤其适用于易燃、易爆和腐蚀有毒液体的液体检测。从而使原复杂环境的液位检测手段变得简单和可靠安全。

液位计具有就地显示的直读式特性。不需多组液位计组合。有着单体进行全量程测量。设备少开孔, 显示清晰, 标志醒目。读数直观等优点。当液位计直接配带显示仪时可省去该系统信号检测的中间变送从而提高其传输精度。

### 工作原理

液位计采用连通器的原理。使容器内液体等高引入到液位计主体管内。在主体管内的漂浮的浮球组件, 根据浮力原理和磁性藕合原理。在主体管外附着能反映磁现象的翻柱作为液面位置的显示。随主体管内液位的变化, 浮球组件的高低也相应变化。从而使主体管外的翻柱作 180 度的翻转, 当液位上升时, 翻柱由白色转为红色, 当液面下降时, 翻柱由红色转为白色。显示器的红、白界位处为容器内介质液位的实际高度。从而实现液面的检测目的如图一所示。

### Function & Application Range

UHZ-50 type magnetic floating ball liquid level indicator (abbreviated as the indicator) is used to test liquid level of media in storage devices (tower, vat, trough, ball-shape container and boiler) under pressure (or open). It could indicate status and height of various liquids. The liquid level signal could be transmitted from long distance with connection of the indicator and liquid level transmitter. With certain electric devices, automatic control & measuring of liquid level could be realized.

The indicator is reliable and safe testing instrument. It has isolated and sealed magnetic coupling structure, it is especially suitable for testing liquid level of inflammable, explosive, or corrosive media.

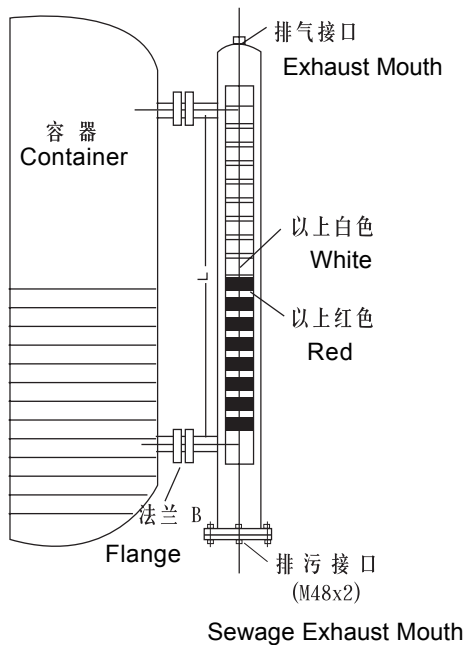
The indicator may clearly and directly display liquid level on the spot. Whole-range measuring could be realized with single body without need of multi sets of indicators. With displayer integrated with the indicator, transmission accuracy could be improved without intermediate transmitting procedures.

### Working Theory

The indicator is based on U-tube flow theory. The liquid in container flows naturally into the indicator body. Based on buoyancy and magnetic coupling theory, liquid level could be displayed with the floating ball inside main body and revival pillar outside. The change of liquid level within main body results in position change of floating ball, which leads to revival of the pillar by 180°. When liquid level rises, revival pillar turns from white to red, and when it falls, the pillar turns from red to white. The demarcation line between red and white indicates the actual level of the medium inside container.

**特点:**

- 1: 适用于容器内液体介质的液位测量除现场显示外, 还可配远传变送器、液位控制器等功能。
- 2: 显示直观醒目, 显示方向可根据用户要求改变显示方向。
- 3: 测量范围大, 不受容器高度限制。
- 4: 显示器组件与被测介质完全隔离, 故密封性好可靠安全。
- 5: 结构简单, 安装方便, 维修简易。
- 6: 耐腐蚀, 防爆



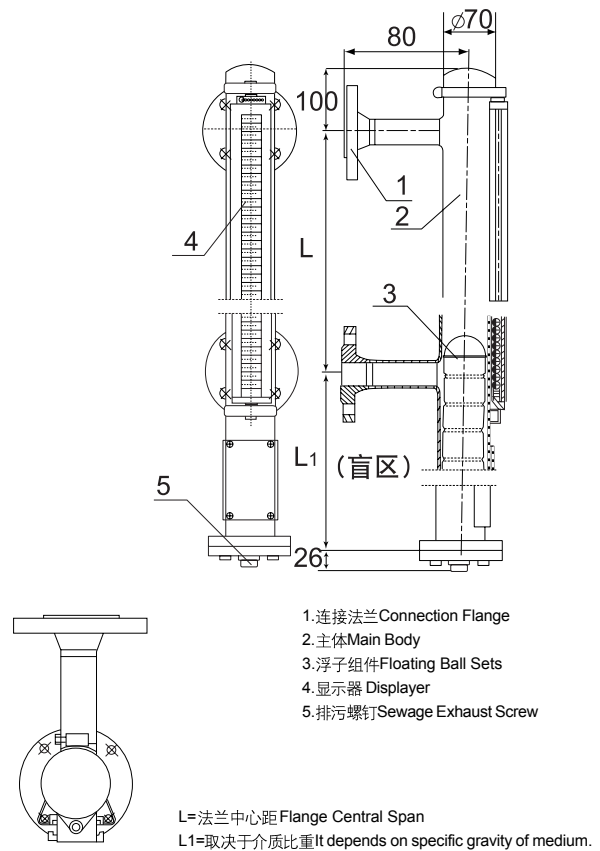
**Figure 1 Working Theory**

**结构与外形尺寸**

**(1):基本型(图2a)**

**Features:**

- 1.It is suitable for measuring liquid level of media inside container on the spot, or in connection with transmitter and controller for long-distance transmission.
- 2.With direct and eye-catching display, and display direction may be changed as user' demand.
- 3.With wide measuring range, without limitation of container height
- 4.With separation of displaying sets from tested medium, closely sealed, safe and reliable
- 5.With simple structure, convenient for installation, easy for maintenance
- 6.With corrosion-resistant & explosion-proof performance.



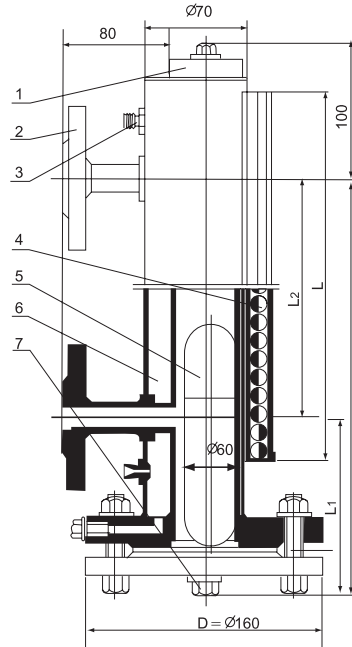
**Figure 2a (Basic Type)**

**Structure & Size**

**(1)Basic Type(Figure 2a)**

**(2):夹套型: (图二 b) (2)Sleeve Tube Type (Figure 2 b)**

1. 主体
  2. 连接法兰
  3. 蒸气接头
  4. 显示器
  5. 浮子组件
  6. 夹套管
  7. 排污螺钉
- 1.Main Body  
 2.Connection Flange  
 3.Vapor Connector  
 4.Displayer  
 5.Floating Ball Sets  
 6.Sleeve Tube  
 7.Sewage Exhaust Screw

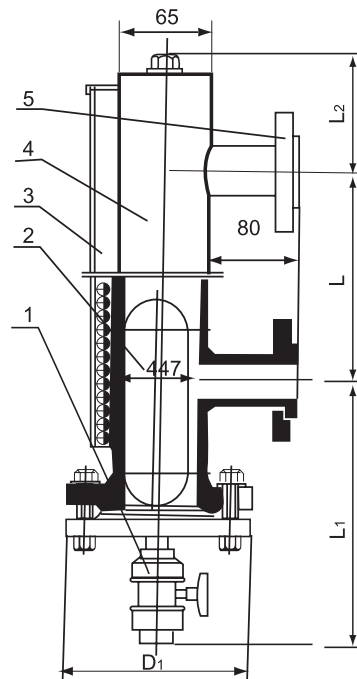


蒸气接口尺寸: M22 × 1.5 外螺纹  
 纹内球面通径 10  
 Vapor Connection Sizes: M22 × 1.5 Outer Thread Inner Ball Surface Diameter 10

主体材料 Main Body Material		法兰材料 Flange Material	夹套材料 Sleeve Tube Material	
Φ 70 不锈钢	Φ 70 Stainless Steel	碳钢 Carbonized Steel	Φ 89 不锈钢	Φ 89 Stainless Steel
Φ 70 不锈钢	Φ 70Stainless Steel	不锈钢 Stainless Steel	Φ 89 不锈钢	Φ 89Stainless Steel
	316L	316L	不锈钢 Stainless Steel	

**(3) 防腐型 (图二 c) (3) Corrosion-resistant Type (Figure 2 c)**

1. 排液阀
  2. 浮子组件
  3. 显示器组件
  4. 主体管
  5. 活套连接法兰
- 1.Liquid Exhaust Valve  
 2.Floating Part Sets  
 3.Displayer Part Sets  
 4.Main Body  
 5.Tube Connection Flange



主体材料 Main Body Material	活套法兰 Tube Flange	排液阀 Liquid Exhaust Valve
PVC	碳钢 Carbonized Steel	PVC
PP	碳钢 Carbonized Steel	PP



### 主要技术参数

1. 测量范围: 0-300mm、0~6000mm
2. 测量精度: ± 10mm
3. 介质密度: ≥ 0.5g/cm<sup>3</sup>
4. 工作压力: 1.0,1.6,2.5,4.0MPa
5. 工作温度: A=80℃ B=120℃ C=200℃ D=300℃
6. 介质粘度: ≤ 0.4Pa.S (在介质条件下, L 对粘度大或低温时易结晶介质要选用加热夹套)
7. 测量界位比重差: ≥ 0.15g/cm<sup>3</sup>
8. 本厂出厂连接法兰尺寸: DN20 PN2.5 (公制管)
9. 连接法兰采用化工部 1998 年发布的 HG20592-20635-97 法兰标准。若采用其它法兰标准请用户在订货时注明。法兰连接孔分布形状: 正方形。

### Main Technical Parameters

- 1.Measuring Range: 0-300mm、0~6000mm
- 2.Measuring Accuracy: ± 10mm
- 3.Medium Density: ≥ 0.5g/cm<sup>3</sup>
- 4.Working Pressure:1.0, 1.6, 2.5,4.0MPa
- 5.Working Temperature:A=80℃ B=120℃ C=200℃ D=300℃
- 6.Medium Viscosity: ≤ 0.4Pa.S (L: The thermal clamp tube should be adopted for medium with high viscosity and crystallization under low temperature.)
- 7.Specific Gravity Difference between Measuring Positions: ≥ 0.15g/cm<sup>3</sup>
- 8.Manufacturer Connection Flange Size:DN20 PN2.5 (metric tube)
- 9.We generally adopt connection flange stipulated in HG20592-20635-97 standard issued in 1998 by Ministry of Chemical Industry. It should be indicated in ordering for demand on other type flange. Flange connection distribution figure: square

### 有关参数选用

### Parameters Contrast

#### 防腐型材料 (见表一)

表一 Form 1

Material of Corrosion-resistant Type (see Form 1)

代号 Code	名称 Description	适用范围 Application Range
PVC	聚氯乙烯 PVC	水.污水.轻微的腐蚀性液体 Water, sewage, lightly corrosive liquid
PP	聚丙烯 PP	耐酸.碱.油脂.油和油剂 Resisting acid, alkali, grease & oil
PE	聚乙烯 PE	耐烯酸.碱.酒精汽油溶 剂 Resisting diluted acid, alkali, alcohol, gasoline solvent
PTFE	聚四氟乙烯 PTFE	耐所有化学品 Resisting chemicals
PVDF	聚偏氟乙烯 PVDF	耐油和油脂、酸.碱溶剂 Resisting oil, grease, acid and alkali solvent
PUR	聚氨脂 PUR	耐燃料、热油和油的液体 (热) Resisting fuel, hot oil and greasy liquid
PA	聚酰胺 PA	耐油.油脂溶剂 Resisting oil, greasy solvent

#### 国内外常用不锈钢材料对照表 (见表二)

表二 Form 2

Stainless Steel Material Code Contrast Form (see Form 2)

中国 China	美国 U.S.A.	德国 Germany	日本 Japan
1Cr18Ni9Ti	321	1.4783	SUS32
0Cr18Ni2Mo2Ti	316	1.4571	
0Cr17Ni12Mo2	316	1.4401	SUS316
00Cr17Ni14Mo2	316L	1.4435	SUS316L
0Cr18Ni9	304	1.4301	SUS304

#### 液体介质密度与沉筒距对照表 (见表三)

表三 Form 3

Contrast Form between Liquid Media & Span L1 (see Form 3)

液体介质密度 Media Density(g/cm <sup>3</sup> )	沉筒距 Span(L1mm)	常用液体介质 Media Description
0.45~0.60	450~600	液化石油气.液氨 LPG, fluid ammonia
0.61~0.74	300~500	汽油.丁二烯 Gasoline, butene
0.75~0.85	250~300	甲醇.轻油.二甲苯 Methane, light oil, toluene
0.86~0.99	220~250	丙酮.啤酒 Acetone, beer
1.00~1.10	200~220	水.醋酸 Water, acetic acid
1.11~1.25	170~200	盐酸.焦油 Hydrochloric acid, tar
1.26~1.39	160~170	液碱.20% 稀硫酸 Fluid alkali, 20% diluted sulphuric acid
1.40~1.59	150~160	液氯.氯仿.浓硫酸 Fluid chlorine, chloroform, dense sulphuric acid
1.60~2.00	120~150	氟油.98% 硫酸 Fluorine Oil, 98% sulphuric acid





## 选型举例:

测量一个承受容器, 工作压力 0.6MPa,  $t=80^{\circ}\text{C}$  测量范围: 2000mm。介质为轻油 (0.8 比重) 要求耐腐蚀材质 (1Cr18Ni9Ti)。平焊法兰。配排污螺钉。上接线盒式 (隔爆) 的输出 4-20mA。侧装式: UHZ-50/C1 1GL-3D-2000-0.6-80 $^{\circ}\text{C}$ -0.8

## 应用须知:

1. 侧装式液位计与被侧容器的上下分液管间最好各装一只截止阀门以便打开或关闭液位计; 另一方面为维修液位计带来方便。

在上下截止阀关闭时。可打开液位计底部 排污法兰或卸下排污螺钉, 注入清水即可清洗液位计的主体。

2. 安装液位计。法兰中心线垂直度  $\angle 4\%$ 。当液位计的测量范围大于 3 米时。需要考虑增加中间加固法兰 (或耳朵攀) 作固定支撑以增加强度。

3. 配套远传液位计变送器与二次仪表之间连线, 则要求连线的芯线截面积应大于  $0.8\text{mm}^2$ 。与交流电源同路平行铺设时, 至少应保持 20 厘米以上的间距, 最好单独穿铁管铺设, 或用屏蔽二芯电缆铺设, 屏蔽层只能一端接地。

4. 选用液位控制器, 其触点容量, 均以阻性负载设计如用非阻性或大功率负载则要用中间继电器转换。

5. 对液体介质中含有悬浮杂质和亲磁物质的场合, 不宜使用本液位计 (因这些杂质会对浮子组件造成卡阻)。

6. 外形结构图中的“L1”为侧装式液位计的“沉筒距”此参数用户必须了解, 该参数与介质密度有关, 根据浮力原理, 浮子组件的长度与介质密度有关, 故在选用, 设计时必须要考虑不同的介质有不同的 L1 详细参数表三 (仅作参考)

## 安装使用和维护

1. 液位计安装必须垂直, 以保证浮球组件在主体管内能上下运动自如 (如图三所示)
2. 最好在容器与液位计之间装截止阀, 以便清洗和检修液位计时切断物料。
3. 液位计主体管周围不容许有导磁体靠近, 否则直接影响液位计正常工作。
4. 液位计安装完毕后, 需要用磁钢进行校正, 对翻柱导引一次使零位以下显示红色, 零位以上显示白色。

The indicator of corrosion-proof material with horizontal welded flange (1Cr18Ni9Ti) and sewage exhaust screw is used to measure liquid level of light oil (specific gravity 0.8) in container under pressure of 0.6Mpa and temperature of  $80^{\circ}\text{C}$  within range of 2000mm. The output of that with upper wire connection box (explosion-proof type) is 4~20mA. The indicator is to be mounted on the side. Type Selection: UHZ-50/C<sub>1</sub>, 1GL-3D-2000-0.6-80 $^{\circ}\text{C}$ -0.8

## Notices in Application

1. Two cut-off valves should be mounted respectively between indicator and upper branch tube and lower branch tube for open and close of indicator and also for maintenance. When both valves are closed and exhaust flange on bottom of indicator is opened or exhaust screw is unloaded, clean water should be poured into for cleaning.

2. Flange center line vertical angle  $\angle 4\%$ . When measuring range of the indicator is more than 3 meters, strengthening flange (or side handles) should be added as support to increase strength.

3. The cross section area of connection wire between long-range transmitter and concerned meter should be more than  $0.8\text{mm}^2$ . The distance of more than 20 cm should be kept if the wire is laid in parallel with A.C. power line. The first choice is shielded 2 cores cable laid in steel tube with ground connection of one end of shielding layer.

4. The contact point capacity of the indicator is based on resistance loading design. The repeater should be adopted for transformation for design of non-resistance or big power loading.

5. The indicator should not be used for media with suspended impurity or magnetic affinity material. (The impurity might result in obstruction of floating part.)

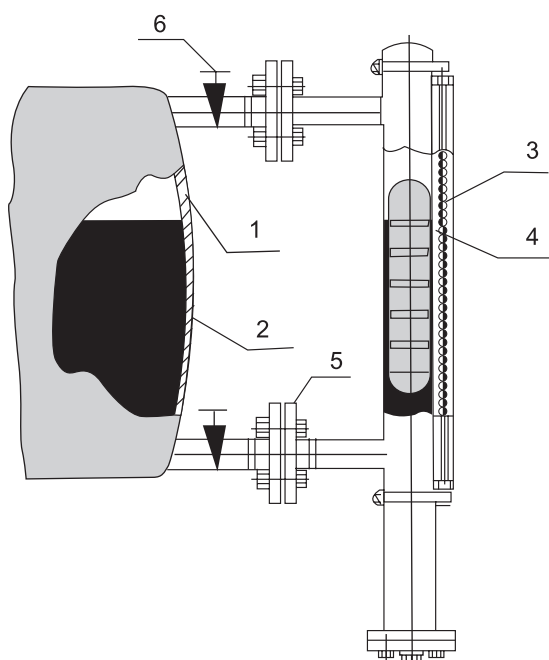
6. The user should know about float span, or L1 in Structure Figure of the indicator. The parameter concerns medium density. According to buoyancy theory, the length of floating sets concerns medium density. Therefore, it should be taken into consideration in selection and design that different media suit with different float span L1. (PLS see Form 3 for reference only.)

## Installation, Usage & Maintenance

1. It should be mounted vertically to ensure free move of floating ball part within the tube. (as Figure 3)
2. It is suggested to mount cut-off valve between container and the indicator for convenience of cutting off medium in washing and repairing the indicator.
3. There must be no magnetic conductive material near main body of the indicator. Otherwise normal working of it would be affected.
4. After installation completion, it should be rectified with magnet steel attracting pillar for once revival resulting in that part below zero point is red and that above zero point is white.

5. 液位计投入运行时应先打开下引液管阀门让液体介质平稳进入主体管，避免液体介质带着浮球组件急速上升，而造成翻柱翻转失灵和乱翻。（若发生此现象待液面平稳后可用磁钢重新校正。）
6. 因运输过程中为了不使浮球组件损坏，故出厂前将浮球组件取出液位计主体管外。待液位计安装完毕，打开底部排污法兰，再将浮球组件重新装入主体管内，注意浮球组件重的一头朝上，不能倒装。
7. 根据介质情况，可定期打开排污法兰清洗主体管内沉淀物质。

- 5.The lower valve should be opened to make liquid flow into the tube stably avoiding sharp rise with floating ball part resulting in being out of order. (If it appears, it should be rectified again with magnetic steel after its stability.)
- 6.The floating ball part should be taken out of main tube of the indicator before delivery to keep it from damage during transportation. It will be installed again into the tube with cautions of keeping its heavier end upside after completion of installation the indicator, and opening sewage exhaust flange on the bottom.
- 7.You may open sewage exhaust screw for cleaning depending on medium situation.



- 1.容器
- 2.被测介质
- 3.显示器组件
- 4.浮球组件
- 5.连接法兰
- 6.截止阀

- 1.Container
2. Medium to Be Tested
3. Displayer Sets
4. Floating Ball Sets
5. Connection Flange
6. Cut-off Valve

图三 安装图

Figure 3 Installation Figure

### 订货须知

1. 型号规格
2. 被测介质名称和密度
3. 工作压力
4. 工作温度
5. 测量范围
6. 连接法兰（标准）
7. 配套仪表
8. 特殊要求

### Notices for Order

- 1.Type & specification
2. Name & specification of medium to be tested
3. Working pressure
4. Working temperature
5. Measuring range
6. Connection flange (Standard)
7. Instrument attached
8. Special demands

# UHZ-50/D 型系列顶装式磁性浮球液位计

## UHZ-50/D Type Series of Top-mounted Magnetic Floating Ball Liquid Level Indicator



### 功能与适用范围

UHZ-50/D 系列顶装式磁性浮球液位计是以浮球组件为测量元件，通过液体浮力作用，使浮球上下移动，带动顶杆上端的磁钢上下变化，经磁性耦合作用，使显示器组件的磁性翻柱翻转达到跟踪液体液位变化，故显示醒目，读数直观，因显示器组件与被测介质完全隔离，故使用安全可靠。该液位计适于各种地下槽池等容器，以及不宜侧面开孔的容器的液位显示，如配上配套仪表可用于远传检测，以实现自动控制功能。

### 工作原理与特点

#### 工作原理：

根据浮力原理和磁性耦合原理而制成的，当被测容器内的液位上下变化时带动浮球，并通过与之相连的连杆上端的永久磁钢上下移动，经磁性耦合而使显示器中的翻柱翻转。当液位上升翻柱由白色转为红色，当液位下降时翻柱由红色转为白色，红白界位处就为容器内介质液位的实际高度，从而实现液位自动跟踪显示。

### Function & Application Range

Floating ball part is the measuring element of UHZ-50/D type series of top-mounted magnetic floating ball liquid level indicator. With buoyancy effect, floating ball moves up and down that results in move of magnet steel at the upper end of top rod. With magnetic coupling effect, it leads to revival of magnetic revival pillar of displayer part. Thus, the change of liquid level could be followed with direct and eye-catching display. It is safe and reliable with separation of displaying part from tested medium.

The indicator is suitable for measuring the liquid level in trough and pool underground, and container on which it is not appropriate to open hole. In connection with attached instruments, it could be used for long-range measuring and transmission. Thus, automatic control could be realized.

### Working Theory & Features

#### Working Theory

It is made based on buoyancy and magnetic coupling theory. The liquid level change of tested medium in container results in move of floating ball. It leads to revival of revival pillar of displayer through move of permanent magnet steel on top end of rod connected with it. When liquid level rises, revival pillar turns from white to red, when it falls, the pillar turns from red to white. The demarcation line between red and white indicates the actual level of the medium inside container. Thus, it could be realized to automatically follow and display the liquid level.



**特点:**

- (1) 在容器不适宜侧面开孔及容器周围空间很少时, 可在容器上部或下部安装本形式的液位计
- (2) 适用于粘度较大的液体介质。
- (3) 显示器的观察方向可任意改变。
- (4) 其他特点和 UHZ-50/C 相同。

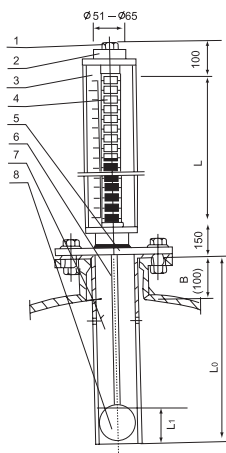
**特点技术参数**

1. 测量精度  $\pm 10\text{mm}$ 。
2. 工作压力  $\leq 2.5\text{Mpa}$
3. 介质密度  $\geq 0.5\text{g/cm}^3$
4. 工作温度  $0^\circ\text{C} \sim 200^\circ\text{C}$
5. 测量范围:  $500 \sim 5000\text{mm}$
6. 介质粘度:  $\leq 0.4\text{Pa.S}$
7. 本厂出厂连接法兰尺寸: DN150PN1.6
8. 连接法兰: 采用化工部 HG20592-20635-97 法兰标准, 若采用其他标准, 请用户在订货时注明。法兰连接孔分布形状: 正方形。

**顶装式磁性浮子液位计的盲区 (图四中的 L1)**

因测量时在结构上存在一定的盲区值, 读数时要补偿, 对不同的介质密度, 浮球的长度是不一样的, 故盲区值也不一样。见表四 (仅供参考)

- B: 贮罐接口颈高 L: 量程范围  
 L1: 盲区 L0: 最大插入深度
1. 排空丝堵
  2. 主体管
  3. 显示器
  4. 磁性翻柱
  5. 连接法兰
  6. 顶杆
  7. 护导管
  8. 浮球组件
- B: L: Measuring Range (mm)  
 M: L<sub>0</sub>: Max. Inset Depth (mm)
1. Aire Exhaust Screw
  2. Main Tube
  3. Displayer
  4. Magnetic Revival Pillar
  5. Connection Flange
  6. Top Rod
  7. Protection Tube
  8. Floating Ball Part



**图四 UHZ-50/D Figure 4 UHZ-50/D**

**产品选型标记**

**选型举例:**

测量地下油罐的油位, 介质为0#柴油, 密度为  $0.8\text{g/cm}^3$  采用护套式顶装液位计, 配远传仪表, 上接线盒  $4\sim 20\text{mA}$  工作温度为常温, 工作压力为  $0.8\text{MPa}$ , 测量范围  $1500$  不锈钢材质, 连接法兰为活套法兰。

**选型标记:**

UHZ-50/D<sub>1</sub>E2T-10-1500-0.8-0-0.8

**Features:**

- (1) The indicator could be mounted on top or bottom of container if it is unsuitable to open hole on the side or that space around container is not enough.
- (2) The indicator is suitable for media with high viscosity.
- (3) The observation direction of displayer may be changed freely.
- (4) Other features remain the same as those of UHZ-50/C

**Technical Parameters:**

1. Measuring Accuracy :  $\pm 10\text{mm}$ .
2. Working Pressure :  $\leq 2.5\text{Mpa}$
3. Medium Density:  $\geq 0.5\text{g/cm}^3$
4. Working Temperature:  $0^\circ\text{C} \sim 200^\circ\text{C}$
5. Measuring Range:  $500 \sim 5000\text{mm}$
6. Medium Viscosity:  $\leq 0.4\text{Pa.S}$
7. Manufacturer Flange Size: DN150PN1.6
8. Connection Flange: We generally adopt connection flange stipulated in HG20592-20635-97 standard issued in 1998 by Ministry of Chemical Industry. It should be indicated in ordering for demand on other type flange. Flange connection distribution figure: square

**Blind Area of the Indicator (L1 in Figure 4)**

The reading needs compensation due to blind area of its structure. For media with different density, the length of floating ball remains different. So the blind area is also different. See Form 4 (for reference only)

Form 4	
盲区 L1 Blind Area L1 (mm)	介质密度 Medium Density $\text{g/cm}^3$
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

**Type Selection Example**

**Type Example**

The indicator of stainless steel material with sleeve connection flange,  $4\sim 20\text{mA}$  upper wire connection box and long-range transmitter is used to measure liquid level of 0# diesel oil (density  $0.8\text{g/cm}^3$ ) in oil tank underground under normal temperature and pressure of  $0.8\text{Mpa}$  within range of  $1500\text{mm}$ .

**Type Selection:**

UHZ-50/D<sub>1</sub> E2T-10-1500-0.8-0-0.8



## 选用须知

- 1.防腐型公称压力 $\leq 1.0\text{MPa}$
- 2.液位计有一定盲区，故在读取液位高度时应加上盲区值补偿（本厂液位计出厂时，标尺刻度零位已迁移到实际值）
- 3.液位计测量范围不超过5米，否则影响液位计的稳定性、牢度等。
- 4.安装连接法兰，本液位计出厂的常用突面尺寸参考(HG21592-97)制造。

## 安装使用和维护

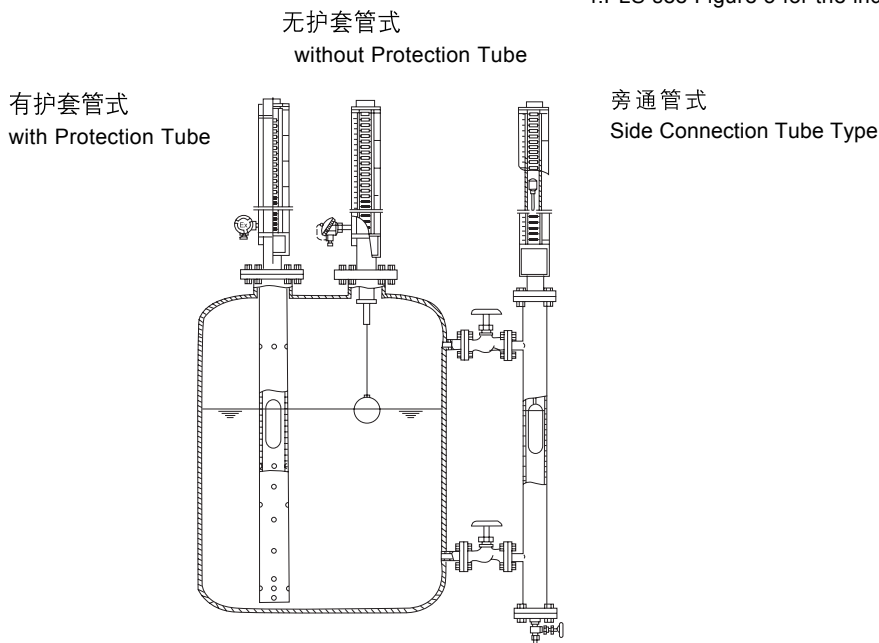
- 1.液位计护导管和主体导管必须保持垂直
- 2.连杆不能弯曲，必须挺直插入。
- 3.安装完毕后，需对显示器的翻柱用磁钢引导一次使零位以上显示为白色，零位以下显示为红色。
- 4.结构形式如图五所示

## Notices in Selection

- 1.Nominal pressure of corrosion-proof type  $\leq 1.0\text{MPa}$
- 2.The reading needs compensation due to existence of blind area of the indicator. (It is zeroed in at the actual value before delivery.)
- 3.The measuring range is within 5 meters. Otherwise stability, reliability or strength of the indicator would be affected.
- 4.The flange is made with reference to HG21592-97 for the sizes.

## Installation, Usage & Maintenance

- 1.Protection tube and main tube of the indicator must be kept erect.
- 2.Connection rod could not be bent and must be insert erectly.
- 3.After installation completion, revival pillar should be attracted with magnet steel resulting in that part above zero shows white while that below zero shows red.
- 4.PLS see Figure 5 for the indicator structure.



图五安装结构形式

Figure 5 Installation Structure Figure

## 订货须知

1. 型号规格配套仪表
2. 测量范围
3. 被测介质名称及密度
4. 工作压力
5. 工作温度
6. 材质要求
7. 法兰标准及连接形式

## Notices for Order

- 1.Type, Specification & Attached Instrument
2. Measuring Range
3. Name & Specification of Tested Medium
4. Working Pressure
5. Working Temperature
6. Material Requirement
7. Flange Standard & Connection

# 配套 $U_R/U_B$ 液位变送器

## $U_R/U_B$ Liquid Level Transmitter Attached

### 概述

#### $U_R$ 系列液位变送器。

该变送器作为本厂磁性浮子液位计的配套仪表，用抱箍带将变送器的传感部分固定在 UHZ-50 型磁性浮子液位计的主体管外侧，使其处于液位计同一磁耦合系统中，利用传感部分内的干簧管受磁性浮子组件中磁钢磁场吸合作用，将液面的变化转换为电阻信号输出。该信号直接与本厂的智能型数显仪表配套，实现对液位远距离检测和控制。

#### $U_B$ 系列液位变送器

该变送器和  $U_R$  变送器不同之处在于  $U_B$  是将  $U_R$  的电阻信号经过电子线路（电路模块）转换为二线制的 4~20mA 输出，该信号直接与 DDZ-III 型仪表配套使用，实现远测和控制，也可与本厂智能数显仪表配套使用。

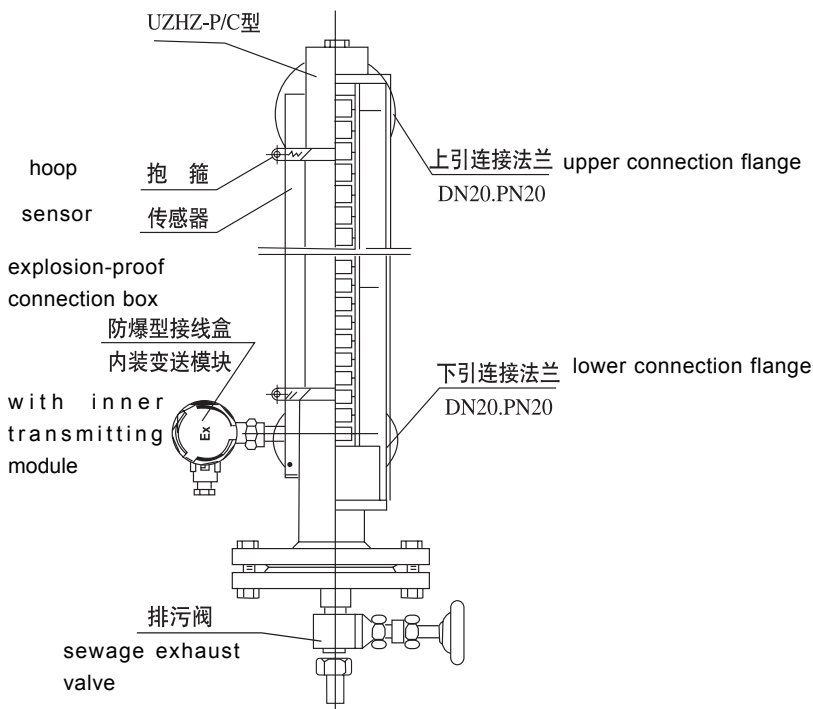
### General Description

#### $U_R$ series of liquid level transmitter

The transmitter, is the attached instrument to the magnetic floating ball liquid level indicator manufactured by us, of which sensor part is fixed on outside of main body of UHZ-50 magnetic floating ball liquid level indicator with hoop in the same magnetic coupling system with the indicator. With attraction effect of magnet steel in floating ball part on reed pipe of sensor part, the change of liquid level is transformed into resistance signal for output. In connection with intellectual digital display meter produced by us, remote measuring and control could be realized.

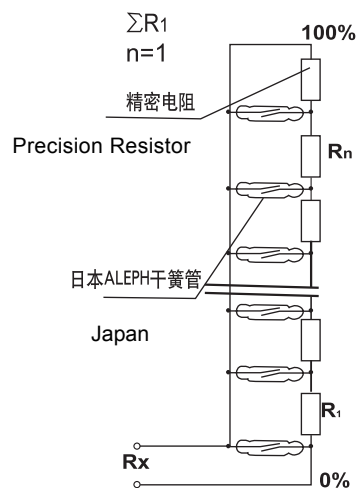
#### $U_B$ series of liquid level transmitter

The difference between  $U_B$  and  $U_R$  transmitters is that in  $U_B$  resistance signal of  $U_R$  transmitter is transformed into the output of 4~20mA of double wire system through electronic circuit (circuit module). In connection with DDZ-III type instruments or intellectual digital display instrument manufactured by us, remote measuring and control could be realized.



图六 (A) 变送器与 UHZ-50 型的结构形式

Figure 6 (a) Connection Structure



图六 (B) UR 工作原理图

Figure 6 (b)  $U_R$  Working Theory Diagram



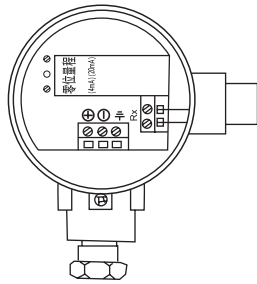
**主要技术参数**

- 1.精度:  $\pm 1.5\%(L \geq 1000m) \pm 2.5\%(L < 1000mm)$
- 2.测量范围: 300~6000mm
- 3.输出信号:  $U_R$ : 电阻量变化  
 $U_B$ : 二线制4-20mA D.C
- 4.工作温度:  $-10^\circ\text{C} \sim +80^\circ\text{C}$
- 5.传输距离: 1000m (导线横截面  $\geq 0.8\text{mm}^2$ )
- 6.出线接口螺纹: M20  $\times$  1.5 内螺纹
- 7.防护等级: IP65
- 8.防爆等级: DIIIBT4~6 iaIICT6
- 9.外形结构:  $U_R$  如图七,  $U_B$  如图八

**Main Technical Parameters**

- 1.Accuracy:  $\pm 1.5\%(L \geq 1000m) \pm 2.5\%(L < 1000mm)$
- 2.Measuring Range: 300~6000mm
- 3.Output Signal:  $U_R$ : resistance capacity change  
 $U_B$ : double wire system 4-20mA D.C.
- 4.Working Temperature:  $-10^\circ\text{C} \sim +80^\circ\text{C}$
- 5.Transmission Distance: 1000m (Cross-section area of wire  $\geq 0.8\text{mm}^2$ )
- 6.Outlet Thread: M20  $\times$  1.5 Inner Thread
- 7.Protection Class: IP65
- 8.Explosion-proof Class: DIIIBT4~6 iaIICT6
- 9.Outer Appearance & Structure: Figure 7 for  $U_R$ , Figure 8 for  $U_B$

零位量程 Zero Measuring Range



图七  $U_R$  外形结构

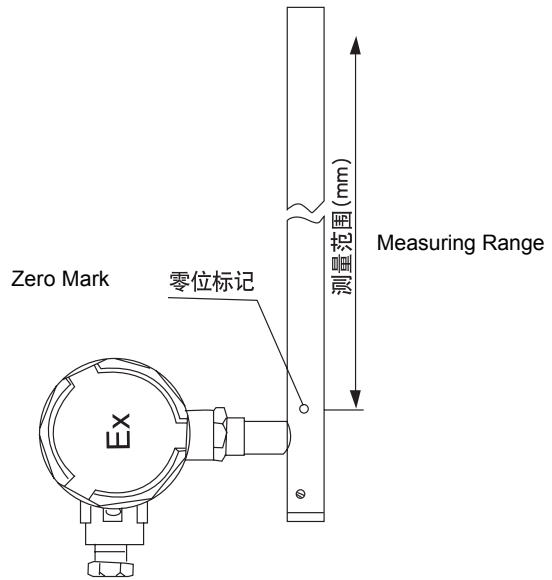
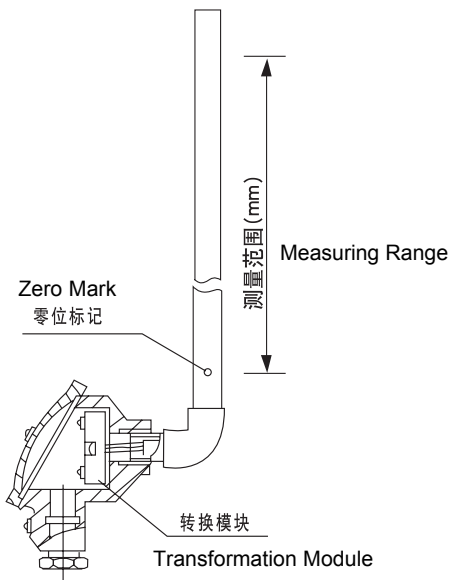
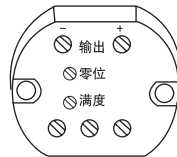


Figure 7  $U_R$  Structure



图八  $U_B$  外形结构



输出 Output  
零位 Zero  
满度 Full Scale

模块接线端子图 Module Connectors Diagram

Figure 8  $U_B$  Structure

## 调试

### 1. 整体调试:

因  $U_R$   $U_B$  与 UHZ-50 型磁性浮球液位计出厂时经调校合格后用抱箍固定在一起, 用户安装前可进行整体调试 (移动磁性浮子组件, 使显示器显示位置应与变送器输出相对应)

### 2. 单独调试:

可将变送器从 UHZ-50 型液位计上拆下, 用磁钢处于变送器的零位标记处, 此时输出应为 4mA 在把磁钢置于满度标记此时输出为 20mA, 若零位满度超差, 即可调节零位电位器和量程电位器, 反复调整直到达到符合技术条件为止, 调好后要重新牢固在液位计主体管外侧必须注意液位计的下连接法兰中心线必须对准显示器刻度标尺的零位和变送器输出零位标记处。

## Debugging

### 1.Integration Debug:

The transmitter UR or UB is bound together with UHZ-50 type magnetic floating ball liquid level indicator with hoop after having been debugged before delivery, the user may conduct debugging on the integral device. (Movement of magnetic floating part brings display result of displayer into correspondence with the output of transmitter.)

### 2.Separate Debug:

The user may disassemble the transmitter from UHZ-50 type liquid level indicator and position magnetic steel at zero mark of transmitter resulting in output of 4mA, and then reposition magnetic steel at full scale mark resulting in output of 20mA. If the difference at both positions is beyond the stipulated, zero potentiometer and measuring range potentiometer should be reset until the results meet technical demands. After debugging completion, the user should reinstall the transmitter on the outside of main tube of liquid level indicator keeping central line of lower connection flange of the indicator in alignment with zero marks of displayer scale and transmitter output scale.

## 订货须知

1. 与 UHZ-50/C 和 UHZ-50/D 一起选型订货
2. 接线盒型式与安装型式任选但要注明。

## Notices for Order

1. It should be chosen and purchased in coordination with UHZ-50/C and UHZ-50/D.
2. Types of connection box and installation ways are chosen freely but have to be indicated.

# 配套 $U_K$ 液位控制器

## $U_K$ Liquid Level Controller Attached

### 概述及工作原理

$U_K$  液位控制器与本厂 UHZ-50 型液位计配套使用，由于控制器紧贴磁性浮球液位计安装与磁性液位计处于同一磁耦合系统中，在磁性浮子组件的磁场作用下，使液位控制器中的干簧管动作，发出接点开关信号，该信号与相应的控制电路配合实现液位位式控制和报警。

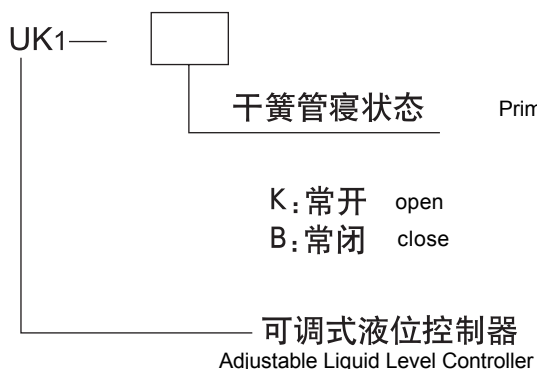
### 主要技术参数

1. 控制位置：在磁性浮球液位计的测量范围内任意设定。
2. 工作温度： $0^{\circ}\text{C} \sim +80^{\circ}\text{C}$
3. 控制精度： $\pm 10\text{mm}$
4. 输出接点容量：AC220V 1A (阻性) DC24V 0.5A
5. 防护等级：IP65
6. 防爆等级：隔爆 ExdIIBT4~6  
本安 ExialICT4~6
7. 出线接口螺纹：M20  $\times$  1.5 内螺纹

### 产品型式

#### 1. $U_K$ 1 点式可调液位控制器

该控制器可使用户根据需要上下移动控制开关高度致使达到所设定的控制位置（点）为止（图九）



图九 Figure 9

### General Description & Working Theory

$U_K$  liquid level controller is the attached instrument to UHZ-50 type liquid level indicator manufactured by us. The controller is installed closely with the liquid level indicator in the same magnetic coupling system. Magnetic field effect of floating part results in movement of reed pipe in the controller sending out contact switch signal. In matching with relevant control circuit, liquid level control and alarm could be realized.

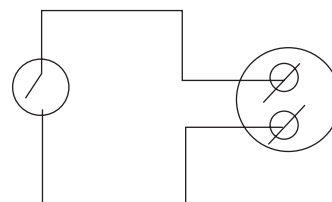
### Main Technical Parameters

1. Control Position: to be set freely within measuring range of the liquid level indicator
2. Operation Temperature:  $0^{\circ}\text{C} \sim +80^{\circ}\text{C}$
3. Control Accuracy:  $\pm 10\text{mm}$
4. Output Connection Point Volume: A.C. 220V 1A (Resistance) D.C. 24V 0.5A
5. Protection Class: IP65
6. Explosion-proof Class: Explosion Isolation: ExdIIBT4~6  
Intrinsic Safety: ExialICT4~6
7. Outlet Thread: M20  $\times$  1.5 Inner Thread

### Type

#### 1. UK1 Adjustable Liquid Level Controller

The user may change the height of control switch as different needs to make it reach control position expected. (Figure 9)

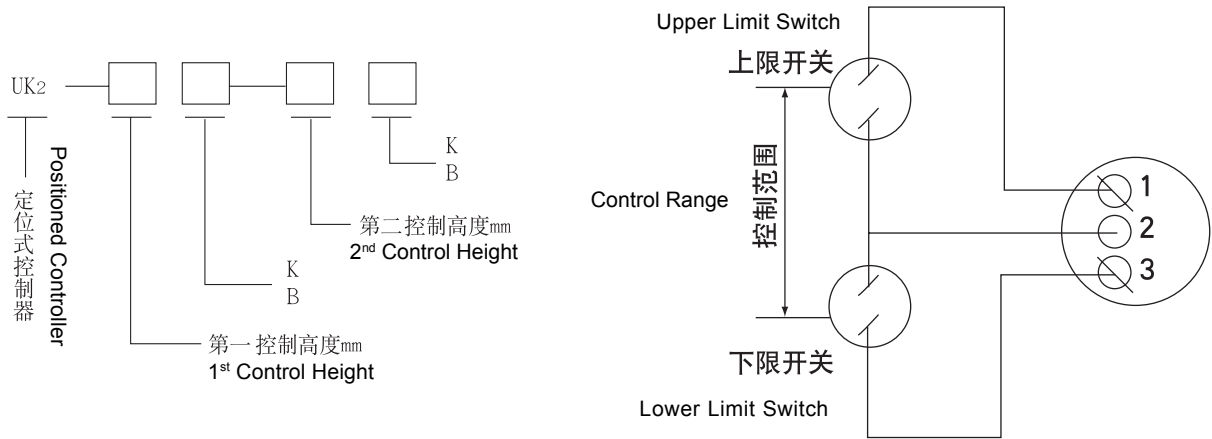


## 2. UK<sub>K</sub>2 定位式液位控制器

该控制器根据用户要求的控制点高度设开关信号,在产品出厂已经确定(一般为上限,下限双点控制)要随 UHZ-50 型液位计用抱箍固定在主体管外侧(图十)。

## 2.U<sub>K</sub>2 Positioned Liquid Level Controller

Switch signal of the controller is according to customer demands on control height by manufacturer before delivery (Generally, double points control including upper limit and lower limit.). The controller is fixed on outside of main tube of UHZ-50 liquid level indicator with hoop(Figure 10).



图十 Figure 10

### 四：选型举例

如果控制点在 400mm 处开关为常开第二控制点在 1500mm 处为常闭。

### Type Selection Example

The switch is kept open when the control height is 400mm, and is kept close when the height is 1500mm.

选型标记: **UK2-400K/1500B**

To be described as: **UK2-400K/1500B**



# UHZ-50/S-U<sub>R</sub>/U<sub>B</sub> 系列插入式磁性浮球液位变送器

## UHZ-50/S-U<sub>R</sub>/U<sub>B</sub> Series Insert Type Magnetic Floating Ball Liquid Level Transmitter



### 概述

#### 1. U<sub>R</sub> 系列插入式磁性浮球变送器

该液位变送器利用带环形磁钢的浮球随液位升降,使主体管内的干簧管吸合,将液位转换成相应的电阻输出,该输出电阻与本厂智能数显仪表配套实现对液位的遥测、报警和控制。

#### 2. U<sub>B</sub> 系列插入式磁性浮球变送器

该液位变送器就是在 U<sub>R</sub> 系列液位变送器的基础上,将其输出电阻信号经专用模块(即电子放大器)处理将电阻信号转换成二线制的 4-20mA 信号输出可直接与 DDZ-III 电动单元仪表配套使用实现遥测,报警和控制,也可与本厂生产的智能型数显仪表配套使用。

插入式磁性浮球液位变送器用于化工、电力、造纸、造船、环保、食品等行业,承压(开口)容器内介质的液位的测量,用于地下槽,池,高层水箱的液位测量,更为简单,可靠,最为理想。插入式液位变送器的材质为不锈钢耐腐蚀,适用于,易燃,易爆的场所。

### General Description

#### 1. U<sub>R</sub> Series Insert Type Magnetic Floating Ball Liquid Level Transmitter

Floating ball with magnetic steel ring rises and falls as change of liquid level resulting in open and close of reed pipe inside main tube of the transmitter and transforming liquid level into resistance output. In connection with intellectual digit display instrument produced by us, remote test, alarm and control of liquid level could be realized.

#### 2. U<sub>B</sub> Series Insert Type Magnetic Floating Ball Liquid Level Transmitter

On the basis of U<sub>R</sub> series liquid level transmitter, through special module process (electronic amplifier), resistance signal output is transformed into 4-20 mA signal of double wire system, which could be directly connected with DDZ-III electromotive unit instrument for realization of remote test, alarm and control of liquid level, or connected with intellectual digit display instrument produced by us.

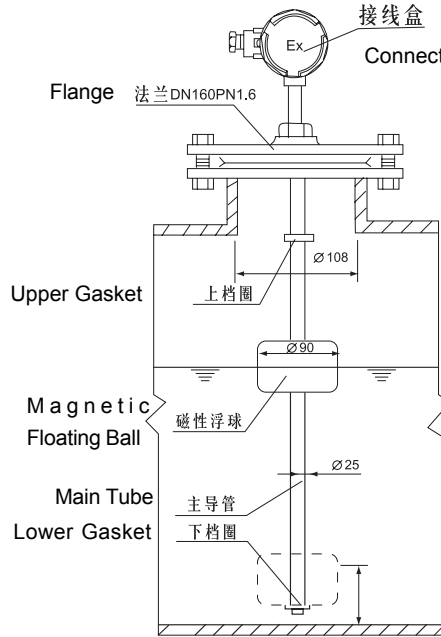
Insert type magnetic floating ball liquid level transmitter is used for measuring liquid level of media in container under pressure (or open) in chemical industry, power, papermaking, shipbuilding, environment protection, and foodstuff industry, etc. It is much more easier and reliable to test liquid level of underground trough, pond, and water container for high-rise building. It is made of corrosion-resistant stainless steel and suitable for place with combustible or explosive.

### 工作原理

插入式磁性浮球液位变送器的主导管内装有一组干簧管和精密电阻，当管外带有环形磁钢的浮球因浮力随液位上下变化，相应的主导管内位于液面处的干簧管在磁场作用下依次闭合（接通）使回路电阻值发生变化，经专用模块转换成电流输出。

### Working Theory

There are a group of reed pipes and precision resistance in main tube of insert type magnetic floating ball liquid level transmitter. The floating ball with magnetic steel ring rises and falls as liquid level change with buoyancy resulting in close (connection) one by one of reed pipes on the liquid surface in main tube of the transmitter under magnetic field effect. Accordingly, resistance value of return circuit changes transforming into electric current output through special module.



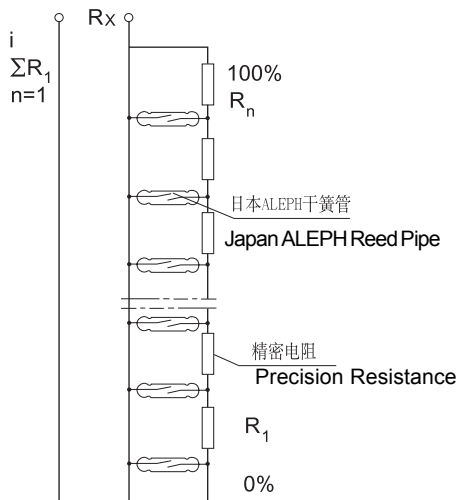
盲区 Blind Area <150mm

图十一结构与形式

Figure 11 Structure & Form

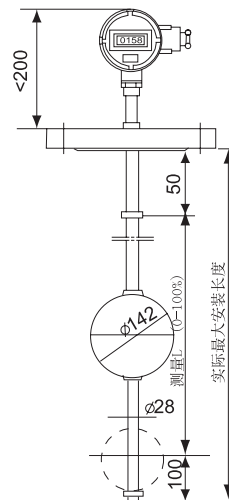
### 外型结构 (图十三)

### Outer Appearance & Structure (Figure 13)



图十二工作原理

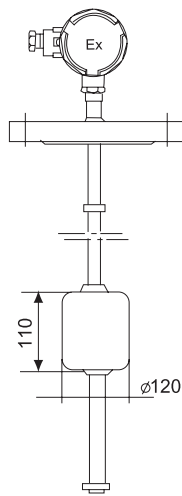
Figure 12 Circuit Diagram



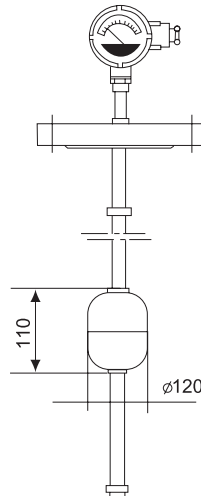
Max. Installation Length

图十三 (A)

Figure 13-a



图十三 (B) Figure 13-b



图十三 (C) Figure 13-C

### 主要技术参数

1. 测量范围:0~6000mm mm
2. 远传精度:  $\pm 1.5\%$  ( $L \geq 1000\text{mm}$ )  
 $\pm 2.5\%$  ( $L \leq 1000\text{mm}$ )
3. 变送器电源:24VDC 4-20mA (二线制)  $R2=350 \Omega$
4. 介质温度: $-10^{\circ}\text{C} \sim +80^{\circ}\text{C}$
5. 介质密度: $\geq 0.5\text{g}/\text{cm}^3$
6. 工作压力: $<1.6\text{MPa}$
7. 连接法兰尺寸:DN150.PN1.6 凸面 (HG20592-97)
8. 现场指示精度: $\pm 2.5\% \text{F.S}$
9. 防护等级:IP65
10. 防爆等级:隔爆型 ExdIIBT4-6  
本安型ExiaCT4-6

### 特点:

1. 结构简单安装方便维修容易工作稳定可靠。
2. 应用范围广: 除高粘度介质外所有介质均可测量。
3. 变送器除 4-20mA DC 标准信号外,现场也可同时选液晶显示或指针指示, 调试方便。
4. 本产品均采用进口干簧管, 解决了干簧管的磁化问题。

### Main Technical Parameters

1. Measuring Range 0~6000mm
2. Long-range Transmission Accuracy:  $\pm 1.5\%$  ( $L \geq 1000\text{mm}$ )  
 $\pm 2.5\%$  ( $L \leq 1000\text{mm}$ )
3. Power Supply: 24VDC 4~20mA (Double Wire System) $R2=350 \Omega$
4. Medium Temperature: $-10^{\circ}\text{C} \sim +80^{\circ}\text{C}$
5. Medium Density: $\geq 0.5\text{g}/\text{cm}^3$
6. Operation Pressure: $<1.6\text{MPa}$
7. Connection Flange Size:DN150.PN1.6 凸面 (HG20592-97)
8. On-the-spot Indication Accuracy:  $\pm 2.5\% \text{F.S}$
9. Protection Class :IP65
10. Explosion-proof Class: Explosion Isolation TypeExdIIBT4-6  
Intrinsic Safety TypeExiaCT4-6

### Features

1. With simple structure, convenient for installation, easy for maintenance, and with stable & reliable operation
2. Wide Application: It could be used for media except for that with high viscosity.
3. Besides standard signal of D.C. 4~20mA, LCD display or indicator on the spot could be chosen. It is convenient for debugging.
4. Imported reed pipes of high quality free from magnetization are adopted for the transmitter.

**选型标记 Type Selection Example**

UHZ-50/S 插入式磁性浮球液位计 UHZ-50/S Insert Type Magnetic Floating Ball Liquid Level Indicator			
$U_R$	电阻信号 Resistance Signal		输出信号 Output Signal
$U_B$	二线制 4~20mA Double Wire System 4~20mA		
O 无就地指示器 (图十三 B ) Without indicator on-the-spot (Figure 13-b)			就地指示型式 On-the-spot Indication Type
Z 指针指示 (图十三 C )	Indicator (Figure 13-c)	适用 $U_B$ 变送器	
X 液晶显示 (图十三 A )	Liquid Crystal Display (Figure 13-a)		
主体材质 Main Body Material	1	1Cr18Ni9Ti (连接法兰为碳钢) (Carbonized steel for connection flange)	
	2	全(Whole)1Cr18Ni9Ti	
	3	316	
	4	316L	
	5	PVC	适用防腐型
	6	PP	Suitable with corrosion-proof type
1 法兰连接材质为碳钢	Carbonized steel for flange connection material	安装型式 Installation Way	
2 法兰连接材质为不锈钢	Stainless steel for flange connection material		
3 架装固定	Fixed on stand		
O 无防爆要求	Without explosion-proof demands	防爆要求 Explosion-proof Demands	
D 隔爆型 ExdIIIBT4~6	Explosion Isolation Type ExdB II BT4~6		
E 本安型 ExiaIICT4~6	Intrinsic Safety Type Exia II CT4~6		
测量范围 Measuring Range (mm)			
D 开口容器	Container with open mouth	工作压力 MPa Working Pressure MPa	
<input type="checkbox"/> 工作压力	Working Pressure		
工作温度 °C Working Temperature °C			
介质密度 g/cm <sup>3</sup> Medium Density g/cm <sup>3</sup>			
UHZ-50/S <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			

**选型举例:**

测量高位缸液位, 采用插入式磁性浮球液位变送器。要求输出为 4~20mA, 现场要模拟指示, 全不锈钢材质, 测量高度 2000mm, 介质密度 1.1, 温度为常温 (30°C)。

**选型标记:**

UHZ-50/S-U<sub>B</sub>Z22O-2000-D-30-1.1

**Example:**

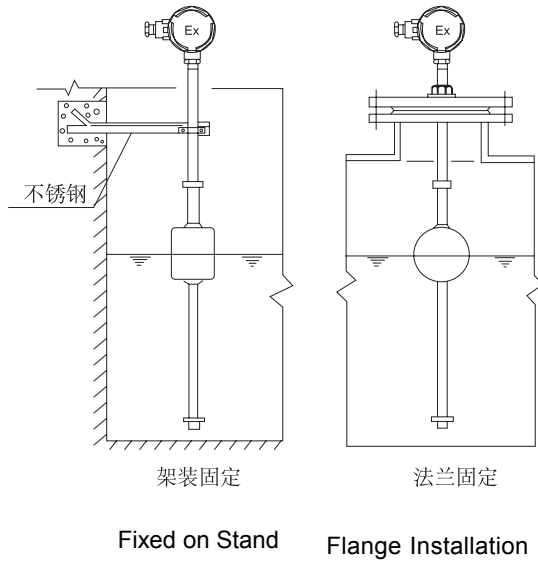
Insert type magnetic floating ball liquid level transmitter is used to measure liquid level of vat at high position, 4~20mA for output, with display simulator on the spot, all stainless steel material, 2000mm for measuring height, 1.1 for medium density, under normal temperature (30°C)

**To be described as:**

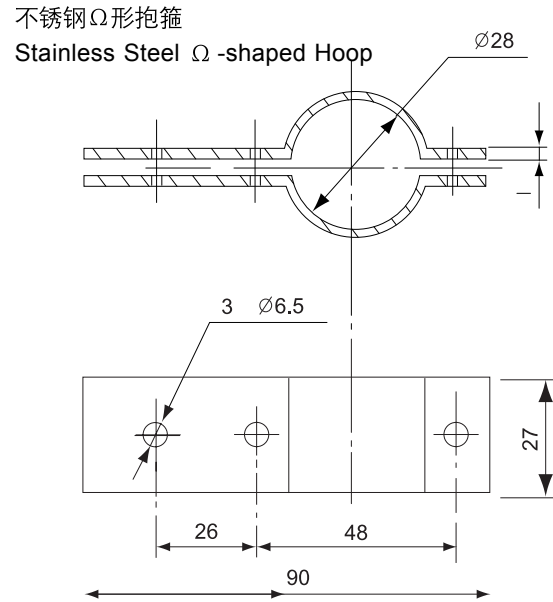
UHZ-50/S-U<sub>B</sub>Z22O-2000-D-30-1.1



## 安装形式 (图十四)



## Installation Figure (Figure 14)



图十四安装形式 Figure 14 Installation Figure

## 安装使用和维护

1. 液位变送器的安装位置，应选择避开或远离液体介质的进口处，减少介质流体对浮球的冲击而产生的影响。
2. 如量程超过3米，变送器的管底要定位避免主导管晃动。

## Installation, Operation & Maintenance

1. The liquid level transmitter should be installed keeping distance from the entrance of liquid medium in order to lower shock effect of liquid medium on floating ball.
2. If measuring range exceeds 3 meters, tube bottom of the transmitter should be fixed to avoid rock of main tube.

## 订货须知

1. 规格型号
2. 测量范围
3. 工作压力
4. 工作温度
5. 介质密度
6. 特殊要求协议签定

## Notices for Order

1. Type & Specification
2. Measuring Range
3. Operation Pressure
4. Operation Temperature
5. Medium Density
6. Agreement for Special Demands

# UHZ-50/S-U<sub>k</sub> 插入式磁性浮球控制器

## UHZ-50/S-UK Insert Type Magnetic Floating Ball Controller

### 概述

UHZ-50/S-U<sub>k</sub>系列插入式磁性浮球控制器输出液位的开关信号，可用于石油、化工、环保、造船、民用建筑等企业，承压和敞口容器的液位控制和报警。

### 优点：

1. 结构简单安装方便维护简易
2. 使用范围广适用多种介质的液位控制
3. 一个控制器可最多控制4个点
4. 重复动作精度高
5. 耐腐蚀性强
6. 特殊要求可协商订制

### 结构原理（图十五）

利用磁性浮球随液位升降使处在主导管内设定位置的干簧管开关动作发出接点开关转换信号。

### General Description

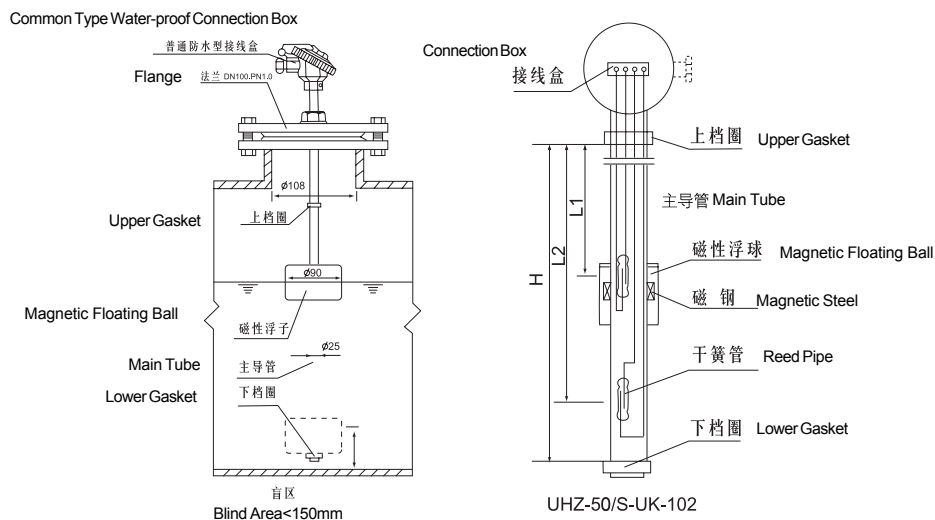
UHZ-50/S-UK series insert type magnetic floating ball controller is used to transmit switch signal of liquid level for control and alarming of liquid level of container under pressure or with mouth open in petrochemical industry, environment protection, shipbuilding, civil construction, etc.

### Advantages:

1. With simple structure, easy for installation and convenient for maintenance
2. With wide application, suitable for liquid level control of various media
3. Liquid level control at 4 points could be realized with one controller.
4. High accuracy for repetition
5. Strong resistance against corrosion
6. Special demands of customer could be met under technical agreements.

### Structure Theory (Figure 15)

Magnetic floating ball rises and falls as change of liquid level, which results in sending out switch signal at contact point with reed pipe action.



图十五结构原理图 Figure 15 Structure & Theory

## 主要技术参数

1. 公称长度: 70-3000mm mm
  2. 控制误差:  $\pm 10$ mm mm
  3. 触点容量: 220VA.C/A(阻性)  
24VD.C 0.5A
  4. 防爆等级: ExidIICT6
  5. 介质比重:  $>0.55$ g/cm<sup>3</sup>
  6. 工作压力: 1.0、1.6、2.5MPa
  7. 工作温度: 0°C~+80°C
  8. 介质粘度:  $\leq 0.4$ Pa.S
- 出线接口螺纹: M20  $\times$  1.5 内螺纹

## Main Technical Parameters

1. Nominal Length:70-3000mm
2. Control Error:  $\pm 10$ mm
3. Contact Volume: 220V A. C/A (Resistance)  
24VD.C 0.5A
4. Explosion-proof Class:ExidIICT6
5. Medium Specific Gravity: $>0.55$ g/cm<sup>3</sup>
6. Operation Pressure:1.0、1.6、2.5MPa
7. Operation Temperature:0°C~+80°C
8. Medium Viscosity: $\leq 0.4$ Pa.S
9. Outlet Thread: M20  $\times$  1.5Inner Thread

## 产品结构形式及安装型式

### 1: 结构型式

因浮球的外观体积与被测介质的比重有关, 故控制器的结构形式也有所不同 (表五) (图十六)

## Structure & Installation Way

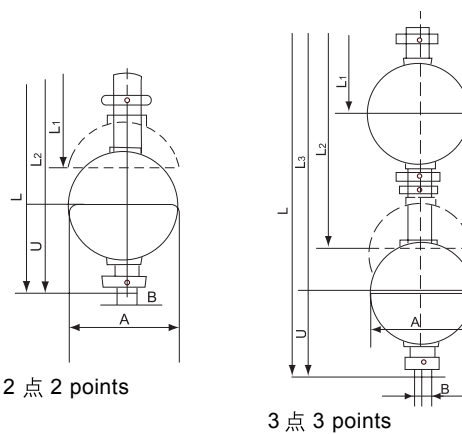
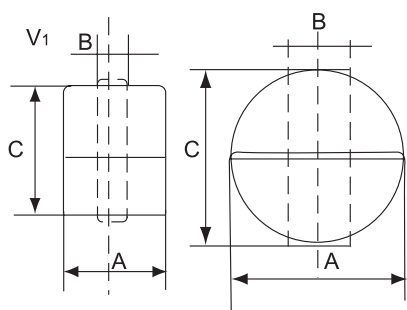
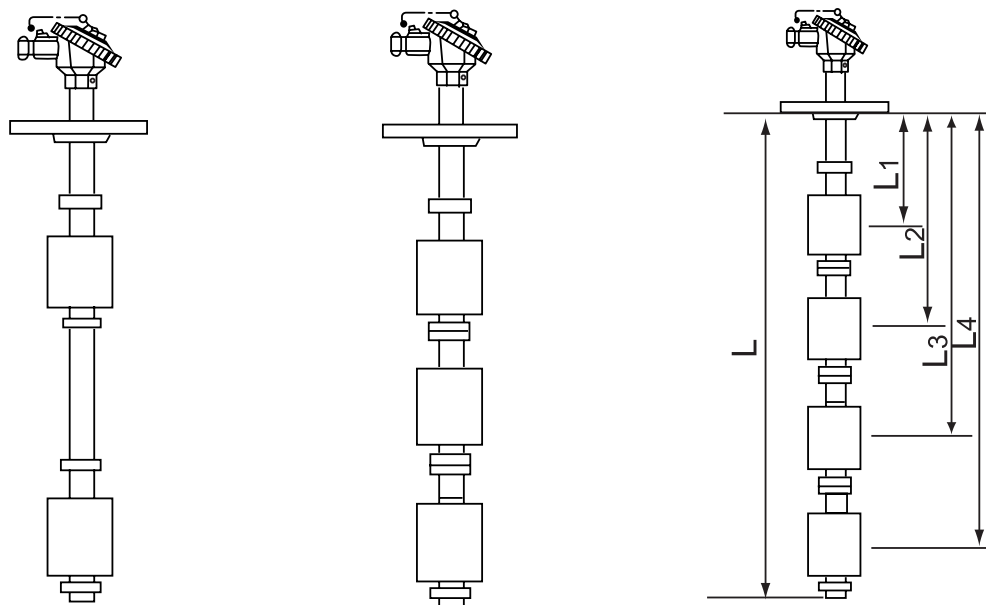
### 1.Structures

Outer appearance and volume of floating ball concern specific gravity of medium to be tested, so the controller structure remains different from each other. (Form 5) (Figure 16)

表5 Form 5

型号 Type	外观尺寸 Sizes A $\times$ B $\times$ C	压力 Pressure MPa	温度 Temperature °C	重量 Weight g	体积 Volume cm <sup>3</sup>	比重 Specific Gravity g/cm <sup>3</sup>
V1 圆柱型 Cylinder	60 $\times$ 5 $\times$ 90	2.5	120	134	226	0.8
V2 球形 Spherical	110 $\times$ 5 $\times$ 110	1.6	120	227	676	0.45
V3 球形 Spherical	110 $\times$ 3 $\times$ 110	1.6	120	255	654	0.52

球形 Spherical	A	B	L1	V	一球二接点距离 Distance(1 ball 2 contact point)	二球二接点距离 Distance(2 balls 2 contact points)
V1	$\phi 60$	$\phi 12$	50	100	60	125mm
V2	$\phi 110$	$\phi 12$	90	120	60	150mm
V3	$\phi 110$	$\phi 18$	90	120	60	150mm



图十六结构形式

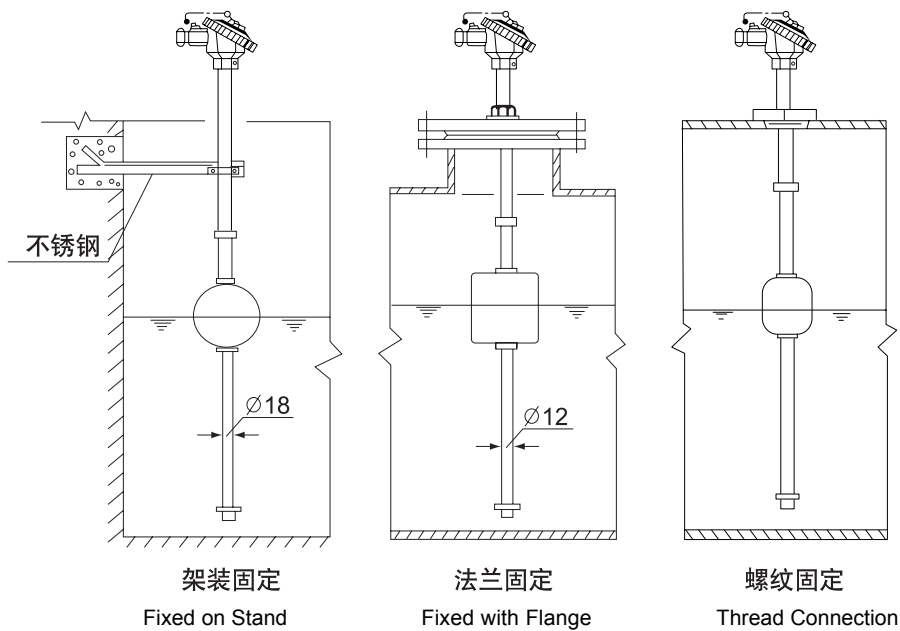
Figure 16 Structures (Flange Connection)

2. 安装使用和维护 (图十七)

2. Installation, Usage & Maintenance (Figure 17)

控制器的安装应避免被测介质的进液口处以减少介质对磁性浮球的冲击引起控制误差。

The controller should be installed keeping distance from the entrance of liquid medium in order to lower control error resulted from shock of liquid medium on floating ball.



**Figure 17 Installation Ways**

**产品选型标记 (选型表一、表二)**

**Type Selection (Selection Form 1 & 2)**

**产品选型标记 (表一)**

**Selection Form 1**

型号 Type	内 容 Content	
U <sub>K</sub> -01	单只磁性浮球, 1 个控制点	Single magnetic floating ball, one control point
U <sub>K</sub> -02	单只磁性浮球, 2 个控制点	Single magnetic floating ball, two control points
U <sub>K</sub> -03	单只磁性浮球, 3 个控制点	Single magnetic floating ball, three control points
U <sub>K</sub> -04	单只磁性浮球, 4 个控制点	Single magnetic floating ball, four control points
U <sub>K</sub> -02	2 只磁性浮球, 2 个控制点	Two magnetic floating balls, two control points
U <sub>K</sub> -03	3 只磁性浮球, 3 个控制点	Three magnetic floating balls, three control points
U <sub>K</sub> -04	4 只磁性浮球, 4 个控制点	Four magnetic floating balls, four control points



**选型标记 Type Selection Example**

UHZ-50/S-U <sub>k</sub> 插入式磁性浮球液位计 UHZ-50/S-U <sub>k</sub> Insert Type Magnetic Floating Ball Liquid Level Indicator			
YOX	Y	表示磁性浮球数 Magnetic Floating Ball Number	输出信号 Output Signal
	X	表示控制点数 Control Point Number	
主体材质 Main Body Material		1 1Cr18Ni9Ti (连接法兰为碳钢) (Carbonized steel for connection flange) 2 全(Whole)1Cr18Ni9Ti 3 316 4 316L 5 PVC 适用防腐型 6 PP Suitable with corrosion-proof type	
		1 法兰连接材质为碳钢 Carbonized steel for flange connection material 2 法兰连接材质为不锈钢 Stainless steel for flange connection material 3 架装固定 Fixed on stand 4 螺纹连接测量范围 <500 常温常压 Thread connection measuring range < 500 under normal temperature and pressure	安装型式与材质 Installation Way & Material
		O 无防爆要求 Without explosion-proof demands D 隔爆型 ExdBIIBT4~6 Explosion Isolation Type ExdB II BT4~6 E 本安型 ExialICT4~6 Intrinsic Safety Type Exia II CT4~6	防爆要求 Explosion-proof Demands
量程高度 (插入最大深度) Measuring Height (Max. Insert Depth) mm			
		K 自上向下第一控制点为常开 Open for the highest control point B 自上向下第一控制点为常闭 Close for the highest control point	控制高度 Control Height
		K 自上向下第二控制点为常开 Open for the second highest control point B 自上向下第二控制点为常闭 Close for the second highest control point	Control Height
		D 开口容器 Container with open mouth <input type="checkbox"/> 工作压力 Working Pressure	工作压力 MPa Working Pressure MPa
工作温度 °C Working Temperature °C			
介质密度 g/cm <sup>3</sup> Medium Density g/cm <sup>3</sup>			
UHZ-50/S-U <sub>k</sub> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			

**选型举例:**

测量地下水池，采用插入式磁性浮球控制器。控制上、下两位（上500，下800）  
 常温常压，法兰连接材质为不锈钢，总高度1500。  
 UHZ - 50/S - U<sub>k</sub> - 102 · 2 · 2 · 0 - 1500 - 500K/800B  
 - D - 0 - 1.0

**Example:**

Insert type magnetic floating ball controller is used to control liquid level of water pond underground at upper and lower position (upper 500, lower 800) under normal temperature and pressure, stainless steel for flange connection material, 1500m for total height.  
 To be described as: UHZ - 50/S - U<sub>k</sub> - 102 · 2 · 2 · 0 - 1500 - 500K/800B - D - 0 - 1.0

## 应用须知

- 1: 不适用于含有悬浮杂质和亲磁物质的液体介质, 这些物质对浮球造成卡阻现象。
- 2: 因该控制器输出开关触点功率较小, 在使用过程中最好采用中间继电器。

## 订货须知

- 1: 规格型号
- 2: 量程范围及控制高度
- 3: 工作压力
- 4: 工作温度
- 5: 介质名称及密度
- 6: 材质要求
- 7: 特殊要求协订

## Notices in Usage

1. It is not suitable with liquid medium with floating impurity or magnetic affinitive material, which might obstruct the floating ball.
2. Adoption of relay is recommended.

## Notices for Order

1. Type & Specification
2. Measuring Range & Control Height
3. Working Pressure
4. Working Temperature
5. Medium Description & Density
6. Demands on Material
7. Special Demands

# TK-UYZ3 □□□□型系列电容物位计

## TK-UYZ3 □□□□ Series Capacitor Type Content Level Indicator



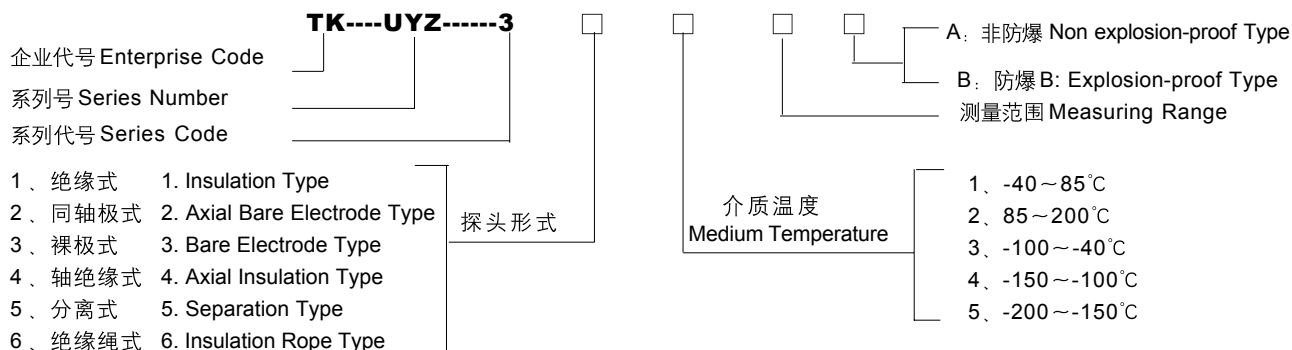
### 概述:

该物位计适用于各种承压、敞口容器，导电与非导电液位、粉状料位等连续测量，将物位变化转换为电容的变化，通过专用电路变换成 4~20mA 电流输出。

### General Description:

It is used to continually measure conductive & non-conductive liquid level or powder content level in sealed or open container turning content level change into capacitance change with current output of 4~20 mA through special circuit.

型号名称 Type & Name	TK-UYZ-3 □□□□型系列电容物位计 TK-UYZ-3 □□□□ Series Capacitor Type Content Level Indicator
测量原理 Operation Theory	电极与金属容器内壁组成一个电容器 Capacitor consists of electric element and inner wall of metallic container.
测量范围 Measuring Range	500mm~10000mm
工作温度 Working Temperature	-200℃~200℃
工作压力 Working Pressure	2.5Mpa
防爆等级 Explosion-proof Class	d II BT4 ia II CT4~6
输出信号 Output Signal	4~20 mA (二线制) 4~20mA (double wire system)
安装型式 Installation Type	法兰 JB/TB1-94PN25 DN40 Flange JB/TB1-94PN25 DN40
测量精度 Measuring Accuracy	非防爆 1.0 级 防爆 1.5 级 Non Explosion-proof Class 1.0 Explosion-proof Class 1.5

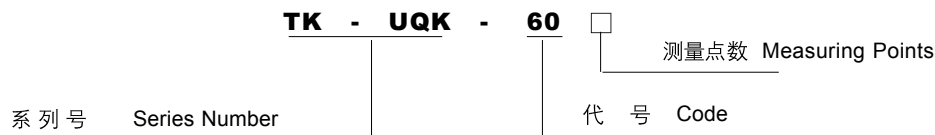


# TK-UQK-60 □ 系列浮球液位控制器

## TK-UQB-60 □ Series Floating-ball Liquid Level Controller



型号名称 Type & Name	TK-UQK-60 □ 系列浮球液位控制器 TK-UQK-60 □ Series Floating Ball Liquid Level Controller
测量范围 Measuring Range	200mm~6000mm
测量精度 Measuring Accuracy	± 10mm
控制方式 Control Way	单点、2点、3点、4点 Single point, 2 points, 3 points, 4 points
触点容量 Contact Capacitance	AC220V 2A
工作压力 Working Pressure	≤ 1.0MPa
工作温度 Working Temperature	-20℃~100℃
介质密度 Medium Density	≥ 0.7g/cm <sup>3</sup>
安装型式 Installation Type	法兰 Flange

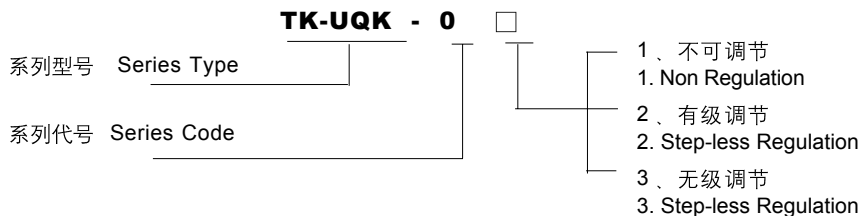


# TK-UQK-01~03 型浮球液位控制器

## TK-UQK-01~03 Type Floating-ball Liquid Level Controller



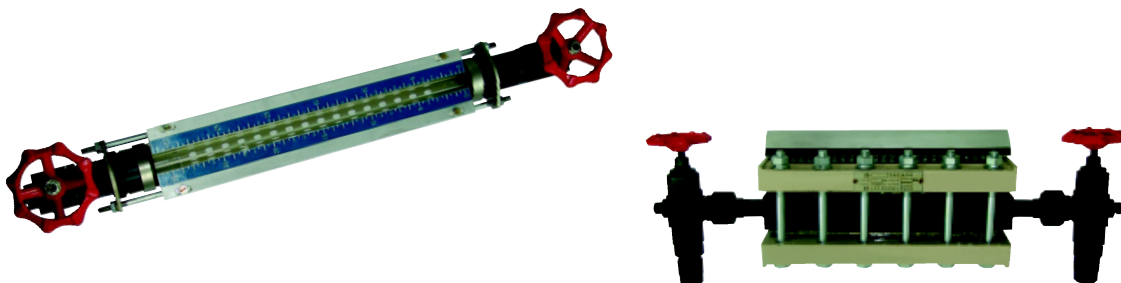
型号名称 Type & Name	TK-UQK-62 □系列浮球液位控制器 TK-UQK-62 □ Series Floating-ball Liquid Level Controller
结构原理 Configuration Theory	磁性耦合原理 Magnetic Coupling Theory
密度范围 Density Range	≥ 0.6 g/cm <sup>3</sup>
测量范围 Measuring Range	300~5000mm
工作温度 Working Temperature	≤ 100℃
工作压力 Working Pressure	≤ 1.0MPa
防爆等级 Explosion-proof Class	d II BT4 ia II CT4~6
接液材料 Liquid Contact Material	1Cr18Ni9Ti PVC 塑料 ABS
输出形式 Output Way	开关信号 220V AC 1A Switch Signal 220V AC 1A





# TK-UB-5 □型系列玻璃板（管）液位计

## TK-UB-5 □ Type Series Glass Plate (Tube) Liquid Level Indicator



型号名称 Type & Name	TK-UB-5 □型系列玻璃板（管）液位计 TK-UB-5 □ Type Series Glass Plate (Tube) Liquid Level Indicator
结构原理 Configuration Theory	高温耐热玻璃，优质耐热材料 Heat-resistant glass, heat-resistant material of high quality
产品特点 Product Features	结构简单、耐高温、工作可靠 Simple structure, resistant against heat & reliable
被测介质 Tested Medium	液体 Liquid
测量范围 Measuring Range	500~1700mm
测量精度 Measuring Accuracy	6mm
工作温度 Working Temperature	≤ 450℃
工作压力 Working Pressure	≤ 4.0MPa
安装形式 Installation Type	DN20 法兰连接侧装式 DN20 Flange Connection Side-mounted Type
接液材料 Liquid Contact Material	1Cr18Ni9Ti

型号 Type	名称 Description	用途 Application
TK-UB-51	透光式玻璃板液位计 Light-penetrable Glass Plate Liquid Level Indicator	一般用于无色透明的液体且光线较好的场合 Generally for colorless & transparent liquid on occasion with bright light
TK-UB-52	透光式带蒸气夹套玻璃板液位计 Light-penetrable Glass Plate Liquid Level Indicator with Vapor-heating Sleeve	在透光式上附有蒸气加热夹套 With vapor-heating sleeve for light-penetrable type
TK-UB-53	反射式玻璃板液位计 Reflection Type Glass Plate Liquid Level Indicator	一般用于有色泽的液体，且光线较好的场合 Generally for colored liquid on occasion with bright light
TK-UB-54	反射式带蒸气夹套玻璃板液位计 Reflection Type Glass Plate Liquid Level Indicator with Vapor-heating Sleeve	在反射式上附有蒸气加热夹套 With vapor-heating sleeve for reflection type
TK-UB-55	防霜式玻璃板液位计 Frost-proof Glass Plate Liquid Level Indicator	使用于低温介质附有避免因低温介质造成外表凝霜的装置 With frost-proof device for low-temperature medium
TK-UB-56	照明式玻璃板液位计 Lightening Type Glass Plate Liquid Level Indicator	在透光式上附有照明订装置 With lightening device for light-penetrable type

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