

UHF-L

Hydrostatic Level Sensor



Typical Applications

Water level measurement in water tanks, pools, and rivers; Drinking water systems, water treatment plants, and water circulation systems;
Liquid level measurement in pump station tanks.

Usage Requirements

Measuring Medium: Temperature $<80^{\circ}\text{C}$, density between 0.8 and 1.1 g/cm^3 , non-corrosive, not explosion-proof
Measuring Range: 0.2 to 50 meters

Product Features

Easy installation, cable connection, direct field application;
High stability, fast response;
Reverse wiring and overvoltage protection, current limiting protection;
Lightning protection, frequency interception design, strong anti-interference capability.

Product Overview

The UHF-L series level sensor uses a stainless steel diaphragm pressure sensor as the signal measuring element. It undergoes automatic computer testing and utilizes laser trimming technology for wide-range zero-point and sensitivity temperature compensation. The amplifier circuit, located within the stainless steel housing, converts the sensor signal into a standard output signal, fully leveraging the technological advantages of diffused silicon sensors.

This product features high interference resistance, low temperature drift, high stability, and high measurement accuracy. It is widely used in water level control in urban water supply and drainage systems, reservoirs, rivers, oceans, and factory water circulation systems, as well as for level measurement in various open containers. It is the most convenient level measurement instrument in the field of industrial automation.

Working Principle

The relationship between the pressure on the sensor surface and the liquid level is: $P = \rho gH + P_0$

P: Pressure on the sensor's surface facing the liquid

ρ : Density of the measured liquid

g: Local gravitational acceleration

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H: Depth of the sensor submerged in the liquid

Po: Atmospheric pressure above the liquid surface

When the sensor is submerged to a certain depth in the liquid, the pressure of the measured medium is introduced into the sensor's positive pressure chamber. The atmospheric pressure Po above the liquid surface is connected to the sensor's negative pressure chamber via a cable-driven air duct to counteract the pressure Po on the sensor's surface. This allows the sensor to measure the pressure as ρgH , thus obtaining the liquid level depth.

Technical Specifications

Measuring Medium: Water or a liquid compatible with the contact material

Overall Material: Diaphragm: 316L stainless steel (contact)

Housing: 304/316L stainless steel (contact)

Seals: Nitrile rubber (contact)

Cable: Polyurethane, etc. (contact)

Measuring Range: 0.2~50 meters (customizable)

Output Signal: 4~20mA, RS485 (standard Modbus-RTU protocol)

Power Supply Voltage: Standard 24VDC (12~36V)

Accuracy Class: 0.25%FS 0.5%FS

Operating Conditions: Medium Temperature: -40~60°C

Ambient Temperature: -40~85°C

Temperature Compensation: -10~60 degrees Celsius

Shock Resistance: 10g (20...2000Hz)

Overload Capacity: 200% full scale

Response Frequency: Analog signal output <500Hz, numerical signal output <5Hz

Stability: $\pm 0.1\%$ FS/year

Temperature drift: $\pm 0.01\%$ FS/°C (within temperature compensation range)

Overall weight: Probe $\approx 300\text{g}$, Cable $\approx 60\text{g}$ per meter

Protection rating: IP68

Maximum power: Current type $\leq 0.02U_s(W)$

Digital type $\leq 0.02U_s(W)$

Note: U_s is the supply voltage

Load characteristics: Current type load $\leq \{(U_s-7.5)\div 0.02\} \Omega$

Remarks: U_s is the supply voltage

Parameter

UHF-L Hydrostatic Level sensor	
UHF-L	Cable-type universal integrated type
Parameter	Cable length(m)

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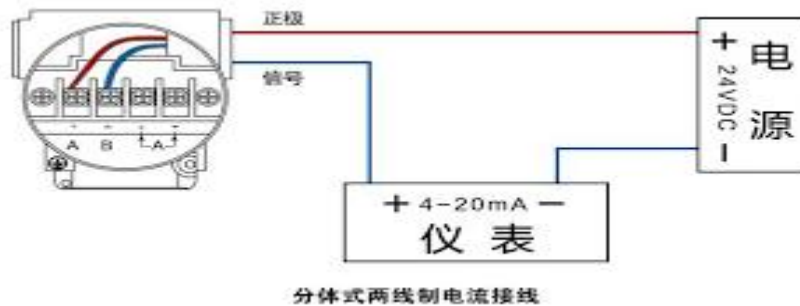
User input	The unit is meter, the maximum is 50m.	
parameter	Range(m)	
User input	The unit is meters and must be less than or equal to the length of the cable	
Parameter	Output signal	
	4-20mA two-line output signal Customized output signal	
Parameter	Accuracy	
	0.5%FS 0.2%FS	
Parameter	Power supply	
	12-36V DC Customized power supply	
Parameter	Probe material	
	304 stainless steel 316L stainless steel	
Parameter	Cable material	
	Waterproof cables (polyurethane, etc. Customized material	
Parameter	Medium density(g/cm³)	
User input	Range:	0.8-1.2

Installation Method:

Choose a location that is easy to operate and maintain;
 Install away from vibration and heat sources as much as possible;
 When installing a hydrostatic level sensor, the metal probe should be submerged at the bottom of the container.

Wiring method:

Connect red wire to power supply V+;
Connect black wire to power supply V-;
Connect the data acquisition device in series.



Precautions

The equipment must be installed without pressurization and power supply.
Do not measure media incompatible with the materials in contact with the sensor.
When submerging the level probe in water, it is best to secure it and keep it away from the water inlet.
If the customer is wiring separately, waterproof measures must be taken (such as sealing the junction box). If not available or if simpler, the wires can be bent downwards to prevent water ingress and avoid malfunctions.
The sensor inlet contains an insulating diaphragm; do not touch it.
Strictly follow the wiring instructions for electrical connections; incorrect wiring will damage the amplifier circuit.
Clean the probe regularly to prevent blockage of the inlet.
Do not use conductive cables to suspend other products; the wires are easily broken under pressure.
If you encounter any problems during installation, please contact our company immediately. Do not attempt to repair the product yourself if it malfunctions.