

YW02-D Series

Intelligent Capacitive Object (Liquid) Level Sensor



SIBO.X INDUSTRIAL CO., LTD.

Core Technologies >>>>

Our company has made a major breakthrough in the field of capacitive digital liquid level sensor research. It makes up for the disadvantages of low traditional sensor measurement accuracy, high environmental requirements and poor product stability, realizes automatic calibration, is not affected by temperature and medium changes, and fills the gap in the industry. It provides a reliable solution for the liquid level measurement of automobiles, aircraft, ships, and gas stations, as well as the liquid level measurement and control of various industrial and civil sites.



Realize
automatic
calibration

Can be
measured in
full
condition

No on-
site
calibration
is required

Safe,
accurate
and reliable

YW02-D5 Universal (object) level sensor

New and upgraded smart capacitive sensor

New Algorithm

Accurate analysis,
automatically find the zero
full point.

Self-Calibrate

Automatic adaptation,
automatic calibration
Quasi , long-term stable output of
the real liquid level

Strong
antipollution.
Resistance ,
anticondensation ,
anti steam , antibubble,
and other
antipollution ability

Safe

Lightning
protection , impact
prevention , full
isolation , anti-
interference , and
self-re



Refuses the False Liquid Level

Universal Level Gauge with Innovative Algorithms

Water , oil, liquid medicine, mucus, and powder

Long - term stable measurements under permissive conditions for any liquid and solid particles

YW02-D5 Universal (object) level sensor

■ Product Profile

YW02-D5 series intelligent capacitive liquid level meter, suitable for sewage, oil (plus casing), high viscosity, easy crystallization, easy adhesion, medium variation, foam or aerosol influence, and other difficult-to-measure occasions. The whole machine has no movable or elastic parts, impact resistance, convenient installation, high reliability, high precision, and good cost performance. It can replace RF conduction, radar, ultrasonic, magnetostrictive, and other bitometers for accurate measurement of various media.

The core components of the product use an advanced radio frequency capacitance detection circuit through the internal processor, accurate temperature compensation, and linear correction. The product adopts tomography

technology to automatically detect the dielectric constant and temperature change of the medium, automatically calibrate, and automatically adapt to the measured medium. In any case, the different measurement requirements of various complex sites can be adapted without recalibration. And has excellent resistance to condensation, anti-bubble, and other super adaptability. It can be measured stably for a long time in a harsh environment.

Main performance characteristics of the products

- ☆ Automatic adaptation, automatic calibration, and long-term stable output of true height value;
- ☆ High resistance, anti-condensation, anti-bubble, and other anti-pollution ability;
- ☆ Simple structure, no movable parts, high reliability, and less maintenance;
- ☆ A variety of signal output options, convenient access to different systems;
- ☆ Not affected by the temperature, specific gravity, pressure, and other factors of the tested liquid;
- ☆ The maximum temperature resistance of 250°C and the maximum pressure pressure of 4 MPa;
- ☆ Good sealing performance, with protection grade IP68 products are available;
- ☆ Perfect lightning protection, overcurrent, overvoltage, and power polarity protection measures;
- ☆ Long-term stability: 0.1%FS/year;
- ☆ Temperature drift: 0.02% FS / °C (within the range of -40 °C - + 80°C);
- ☆ measurement accuracy:

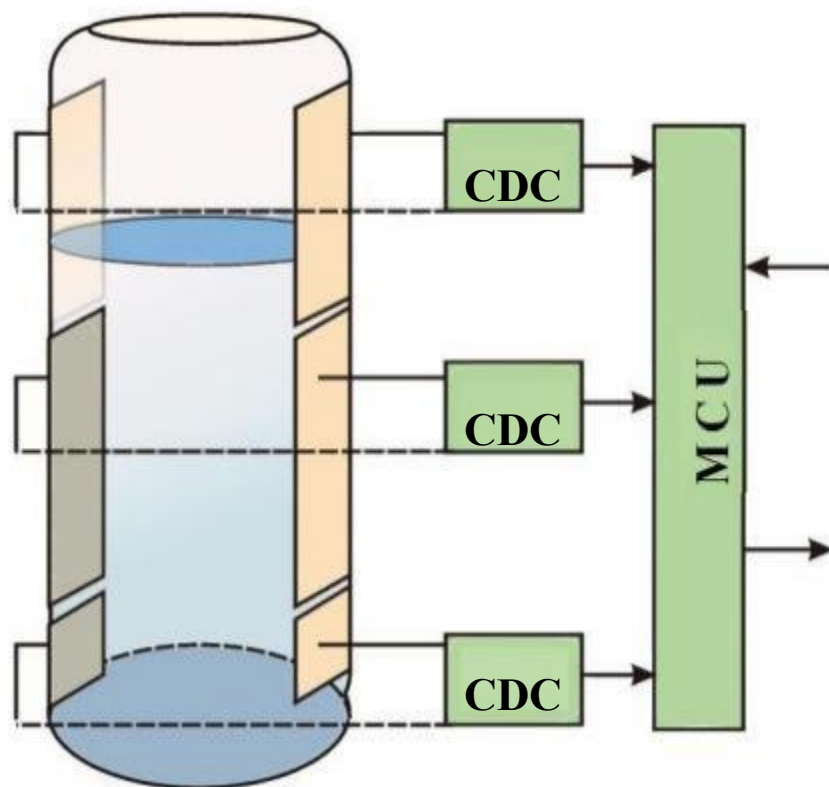
When the measurement range is within 300 mm, the absolute error is within ± 3 mm (including 3 mm); when the measurement range is 300 - 700 mm, the accuracy level is 1.0; when the measurement range is 700 - 2000 mm, and the accuracy level is 0.5.

YW02-D5 Series of products

Detection principle of universal capacitive type (object) liquid level sensor

Capacitive (object) liquid level sensor is based on the principle of capacitor induction, using the capacitor formed by the cylindrical capacitor sensor and the measured medium changes linearly with the liquid level of (object), the change of capacitor (i. e., the change of liquid level) into the standard electrical signal output. The core components of the product uses a highly integrated dedicated capacitance measurement chip, multi-layer scanning analysis of the sensor, after accurate compensation and correction, the output of the required electrical signals.

■ Multilayer scanning, intelligent analysis



YW02-D5 Universal (object) level sensor

Product classification and applicable scenarios

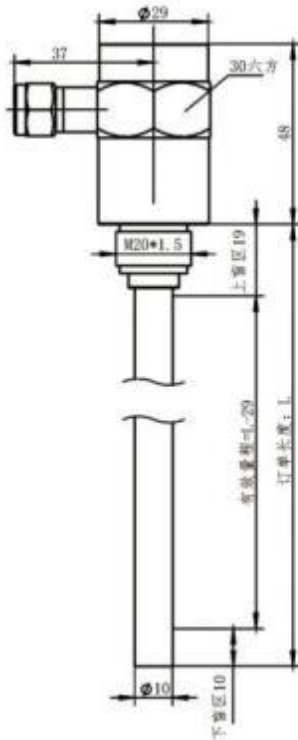
Type	Appearance shape	Basic features, and applications
YW02-D51 Small type		Pole diameter: 10mm, pressure: 0.1--2.5MPa, medium temperature degree: -40-- -85°C, (6051C can withstand 120°C) default no protection pipe, without the maximum range of 2 m, with the maximum range of 6 m, IP68 protection level, suitable for sanitation vehicles, septic tanks, pressure vessels, reaction kettles, oil tank trucks, oil reservoirs, underground pipe networks, sewage treatment, and central air conditioning and other places with harsh conditions.
YW02-D52 Industry normalized form		Pole diameter of 10mm, pressure: 0.1--2.5 MPa, medium temperature-40 - 120°C, default no protection tube, maximum range of 2m, maximum range of 6 m, IP65 protection grade, applicable to oil depots, liquefied natural gas storage tank, chemical plant, water pool, and other industrial sites.
YW02-D53 Industry Enhancement mode		Pole diameter 16mm and 25mm, the main feature is exploration large pole diameter, high level gauge strength, design pressure-0.1-4MPa, the maximum range up to 10m, suitable for oil depots and pressure vessels, chemical plants with mixing equipment, and other industrial sites requiring high strength.
YW02-D54 Anti-corrosion type		10mm and 16mm, LP-0.1-0.6 MPa, temperature-40-120°C, suitable for strong corrosive solution bodies, more serious medium, and installed in FRP, plastic, and other non-metal containers, the 10 mm maximum range of 2 m, 16mm maximum range of 6m, IP68 protection, etc level 1, built-in auxiliary electrode, the instrument field can be added without an auxiliary electrode.
YW02-D55 Miniature		Suitable for measuring conductive medium in small range and limited installation space, atmospheric-0.1--0.1 MPa, temperature-40-80°C.

YW02-D5 Universal (object) level sensor

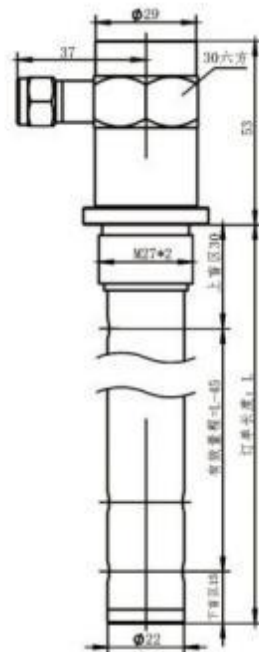
- Product series (1) YW02-D51 compact liquid level sensor
- YW02-D51-A stainless steel shell, side outlet line



Picture of real products



No outer tube dimensions drawing



Size diagram with external pipe

Technical Parameter:

1. Order length L: 50 - 2000 mm (maximum 6000mm);
2. Accuracy: absolute error ± 3 mm (L < 300 mm), accurate degree level 1.0 (300 < L < 700 mm), accuracy level 0.5 (700 < L $\leq$ 2000 mm);
3. Medium temperature: -40 - 85°C;
4. Pole temperature resistance: -60~150°C;
5. Signal type: 4-20 mA / 0-5V / RS485 / CAN;
6. Power supply voltage: (4-20 mA) 12-28 Vdc, typical 24 Vdc; (0-5V/RS485/CAN) 4.5-36Vdc; customized according to user requirements in special cases;
7. Operating current: (0-5V / RS485 / CAN) 5 - 10 mA;
8. Pressure range: -0.1-2.5MPa;
9. Long-term stability: 0.1 % FS/year;
10. Temperature drift: <0.02% FS / °C (within the range of -40 to 80°C);
11. Protection level: IP68;
12. Pole exploration material: FEP;
13. Pole diameter: ϕ 10mm;
14. Material of fixing screw: SUS 304;
15. Fixed mode: thread installation M20 * 1.5, (with protective pipe M27 * 2);
16. Size tolerance: ± 3 mm.

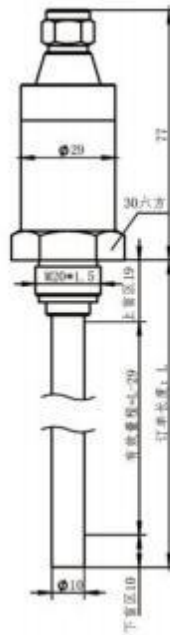
YW02-D5 Universal (object) level sensor

■ Product series (1) YW02-D51 compact liquid level sensor

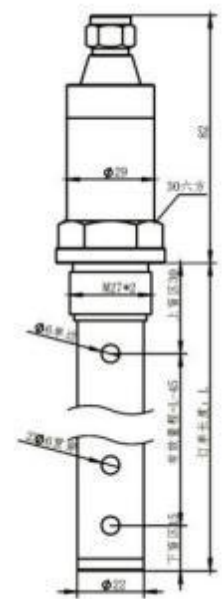
■ YW02-D51-B stainless steel shell, top out line



Picture of
real products



No outer tube
dimensions
drawing



Size diagram
with external
pipe

Technical Parameter:

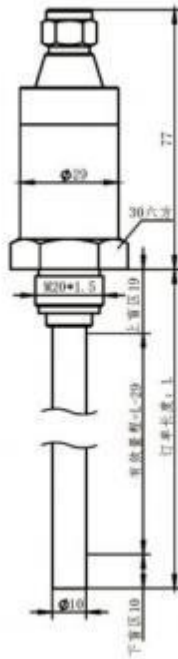
1. Order length L: 50 - 2000 mm (6000 mm);
2. Accuracy: absolute error ± 3 mm (L < 300 mm), accurate degree grade is 1.0 (300 < L < 700 mm), accuracy grade is 0.5 (700 < L < 2000 mm);
3. Medium temperature: -40 - 85°C; 4. Pole temperature resistance -60 - 150°C;
5. Signal type: 4-20 mA / 0-5V / RS485 / CAN;
6. Power supply voltage: (4-20 mA) 12 - 28 Vdc, typical 24 Vdc; (0-5V/RS485/CAN) 4.5-36Vdc; customized according to user requirements in special cases;
7. Operating current: (0 - 5V / RS485 / CAN) 5 - 10 mA.
8. Pressure range: - 0.1-2.5MPa;
9. Long-term stability: <0.1% FS/year;
10. Temperature drift: 0.02% FS / °C (within the -40 to 80°C range);
11. Protection level: IP68;
12. Pole exploration material: FEP;
13. Pole diameter: $\phi 10$ mm;
14. Material offixing screw: SUS 304;
15. Fixed method: M20 * 1.5 (with M27 * 2);
16. Size tolerance: ± 3 mm.

YW02-D5 Universal (object) level sensor

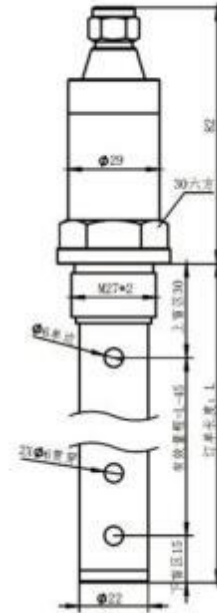
- Product series (I) YW02-D51 compact liquid level sensor
- YW02-D51-C polysulfone shell, top outlet (slightly higher medium temperature)



Picture of real products



No outer tube dimensions drawing



Size diagram with external pipe

Technical Parameter:

1. Order length L: 50 - 2000 mm (6000 mm);
2. Accuracy: absolute error ± 3 mm ($L < 300$ mm), accuracy level 1.0 ($300 < L \leq 700$ mm), accuracy level 0.5 ($700 < L \leq 2000$ mm);
3. Medium temperature: -40 to 120°C ;
4. Pole temperature resistance: -60 to 150°C ;
5. Signal type: 4-20 mA / 0-5V / RS485 / CAN;
6. Power supply voltage: (4-20 mA) 12-28 Vdc, typical 24 Vdc; (0-5V/RS485/CAN) 4.5-36Vdc; customized according to user requirements in special cases;
7. Operating current: (0-5V / RS485 / CAN) 5-10 mA;
8. Pressure range: -0.1 - 2.5 MPa;
9. Long-term stability: $<0.1\%$ FS/year;
10. Temperature drift: 0.02% FS / $^{\circ}\text{C}$ (within the -40 to 80°C range);
11. Protection level: IP68;
12. Pole exploration material: FEP;
13. Pole diameter: $\phi 10\text{mm}$;
14. Material of fixing screw: SUS 304;
15. Fixed method: M20 * 1.5 (with M27 * 2);
16. Size tolerance: $\pm 3\text{mm}$.

The YW02-D51 type selection table

(Encoding format: YW02-D51-①-②-③-④-⑤-⑥)

encoding ①	Shell material	Outgoing line mode, medium temperature and pressure	
A	304 stainless steel	Side outlet line, below-40℃~80℃, 2.5 MPa	
B	304 stainless steel	Top line, below-40℃~80℃, 2.5MPa	
C	Polysulfide shell	Top line, below-40℃~120℃, 2.5MPa	
encoding ②	way to install		
1	Outer thread M20 * 1.5		
2	Outer thread M27 * 2		
code ③	protector tube		
0	No protection tube (default)		
1	With a Φ 16 stainless steel protective pipe		
2	With φ 22 stainless steel protective pipe		
encoding ④	Output signal type	Power voltage range	The power supply voltage is recommended
1	4-20 mA in two lines	DC12-28V	DC24V
2	4-20 mA three-line system	DC12-28V	DC24V
3	RS485	DC4.5-36V	DC5V\DC12V\DC24V
4	RS232	DC4.5-36V	DC5V\DC12V\DC24V
5	TTL	DC4.5-36V	DC5V\DC12V\DC24V
6	CAN	DC4.5-36V	DC5V\DC12V\DC24V
7	0-3.3V	DC4.5-36V	DC5V\DC12V
8	0-5V	DC9-36V	DC12V\DC24V
9	0-10V	DC12-36V	DC12V\DC24V
code ⑤	Instrument level	remarks	
I	Technical grade	Ambient temperature: -40 to -85℃, operating within the nominal supply voltage range	
E	Car class	Ambient temperature: 40 - 125℃, long-term operating voltage of250V	
M	Military-industry level	Ambient temperature: 55 - 125℃, long-term operating voltage of300V	
Note: 4-20 mA output type only industrial-grade products			
encoding ⑥	Order Length (mm)	remarks	
□/□/□	Sensor total length / up / down blind area	Sensor total length is required; the upper and lower blind areas are filled according to the order requirements, special orders are required, and general product blind areas are not filled	

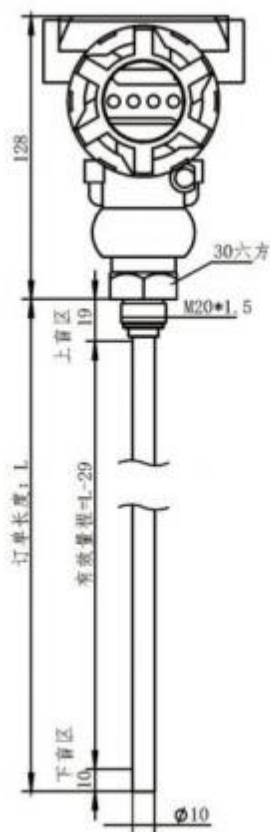
YW02-D5 Universal (object) level sensor

■ Product series (II) YW02-D52 standard type industrial liquid level meter

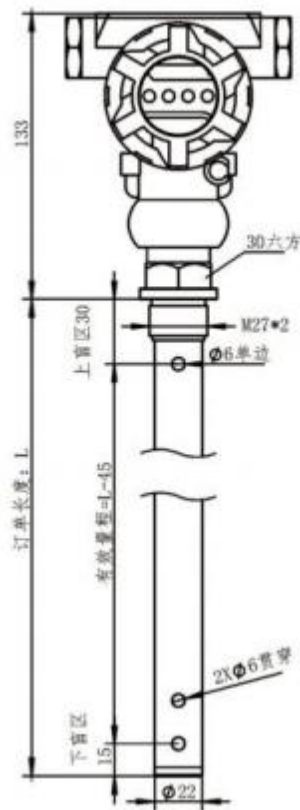
■ YW02-D52 2088 aluminum alloy shell OLED display



Picture of real products



Size drawing without pipe protection pipe



Size diagram with care pipe

Technical Parameter:

1. Order length L: 50 - 2000 mm (maximum tube 6000 mm);
2. Accuracy: absolute error ± 3 mm ($L < 300$ mm), accurate degree level 1.0 ($300 < L < 700$ mm), accuracy level 0.5 ($700 < L \leq 2000$ mm);
3. Medium temperature: $-40 - 120^{\circ}\text{C}$;
4. Pole temperature resistance: -60 to 150°C ;
5. Signal type: two-wire system 4-20 mA / three-wire system 4-20 mA;
6. Supply voltage: 18 - 36 Vdc, typical 24 Vdc;
7. Pressure range: -0.1 - 2.5 MPa;
8. Long-term stability: $<0.1\%$ FS/year;
9. Temperature drift: $<0.02\%$ FS / $^{\circ}\text{C}$ (within the range of -40 to 80°C);
10. Protection level: IP65;
11. Pole exploration material: FEP;
12. Pole diameter: $\phi 10$ mm;
13. Material offixing screw: SUS 304;
14. Fixed method: thread installation M20 * 1.5, (with protective pipe M27 * 2);
15. Size tolerance: ± 3 mm.

The YW02-D52 type selection table

(Encoding format: YW02-D52-①-②-③-④)

code ①	way to install		
1	Outer thread M20 * 1.5		
2	Outer thread M27 * 2		
F	Flange connection, flange code such as DN25- -fill in F25, usually according to the HG / T 20592-2009 standard, the material is the same as the joint material		
code ②	protector tube		
0	No protection tube (default)		
1	With a φ 16 stainless steel protective pipe		
2	With φ 22 stainless steel protective pipe		
code ③	Output signal type	Power voltage range	The power supply voltage is recommended
1	4-20 mA in two lines	DC18 - 36V	DC24V
2	4-20 mA three-line system	DC12-28V	DC24V
encoding ④	Order Length (mm)	remarks	
□/□/□	Sensor total length / up / down blind area	Sensor total length is required, upper and lower blind areas according to the order requirements, special Orders are required; the general product blind area is not filled	
Note: This series of products can be 2000mm, 16mm, 1000mm, and 22mm, 6000mm			

Selection example: YW02-D52-F25-2-1-1500/300/30 selection description: industrial standard universal liquid level sensor, DN25 flange installation, plus ϕ 22 stainless steel protection pipe, 4-20 mA two-line signal output, sensor total length of 1500 mm, upper blind area 300 mm, lower blind area 30 mm

★ Note: For the sensor with 4-20 mA two-line signal output, the power supply voltage should consider the pressure drop loss generated by the line resistance and the resistance of the upper machine, and the voltage of the positive and negative terminals of the sensor terminal is within the required range.

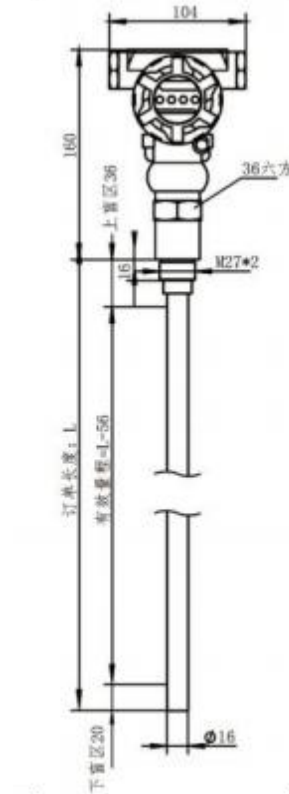
YW02-D5 Universal (object) level sensor

■ Product family (III) YW02-D53 enhanced industrial liquid level meter

■ YW02-D53-A Low temperature and low pressure type



Picture of real products



External size diagram

Technical Parameter:

1. Order Length L: 100 – 6000 mm;
2. Accuracy: absolute error ± 3 mm ($L < 300$ mm), accuracy level 1.0 ($300 < L < 700$ mm), accuracy level 0.5 ($700 < L \leq 2000$ mm);
3. Medium temperature: $-40 - 120^{\circ}\text{C}$;
4. Pole temperature resistance: -60 to 150°C ;
5. Signal type: two-wire system 4-20 mA; three-wire system 4-20 mA; 6. Power supply voltage: 18 – 36 Vdc, typical 24 Vdc;
7. Pressure range: -0.1 -2.5 MPa;
8. Long-term stability: $< 0.1\%$ FS/year;
9. Temperature drift: 0.02% FS / $^{\circ}\text{C}$ (within the -40 to 80°C range);
10. Protection level: IP65;
11. Pole exploration material: FEP;
12. Pole diameter: $\varnothing 16$ mm;
13. Material of fixing screw: SUS 304;
14. Fixed method: thread installation M27 * 2; 15. Size tolerance: ± 3 mm.

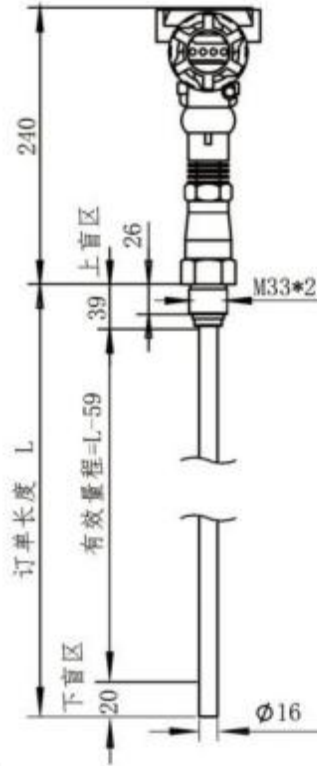
YW02-D5 Universal (object) level sensor

■ Product series (III) YW02-D53 Enhanced industrial liquid level meter

■ YW02-D53-B Low-temperature medium-pressure type



Picture of real products



External size diagram

Technical Parameter:

1. Order Length L: 100 – 6000 mm;
2. Accuracy: absolute error $\pm 3\text{mm}$ ($L < 300\text{mm}$), accurate degree grade is 1.0 ($300 < L < 700\text{ mm}$), accuracy grade is 0.5 ($700 < L < 2000\text{ mm}$);
3. Medium temperature: $-40 - 120^{\circ}\text{C}$;
4. Pole detection and temperature resistance: -60 to 150°C ;
5. Signal type: two-wire system 4-20mA / three-wire system 4-20mA;
6. Supply voltage: 18 – 36 Vdc, typical 24 Vdc;
7. Pressure range: $-0.1 - 4\text{ MPa}$;
8. Long-term stability: $< 0.1\% \text{ FS / year}$;
9. Temperature drift: $0.02\% \text{ FS / }^{\circ}\text{C}$ (within the -40 to 80°C range);
10. Protection level: IP65;
11. Pole exploration material: FEP;
12. Pole diameter: $\phi 16\text{mm}$;
13. Material offixing screw: SUS 304;
14. Fixation method: thread installation M33 * 2;
15. Dimension tolerance: $\pm 3\text{ mm}$.

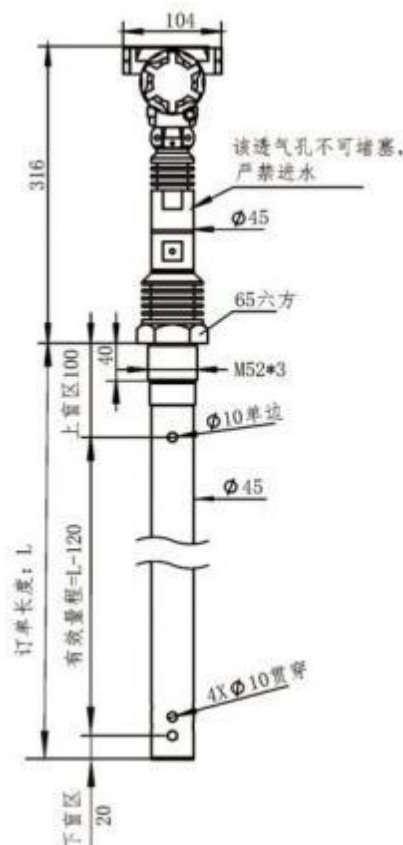
YW02-D5 Universal (object) level sensor

■ Product series (III) YW02-D53 Enhanced industrial liquid level meter

■ YW02-D53-D Industrial high-standard type



Picture of real products



External size diagram

Technical Parameter:

- Order Length L: 200 - 10000 mm;
- Accuracy: absolute error ± 5 mm ($L < 500$ mm), accuracy level 1.0 ($500 < L \leq 1000$ mm), accuracy level 0.5 ($1000 < L \leq 10000$ mm);
- Medium temperature: -200 to 250°C;
- Pole temperature resistance: -200-260°C;
- Signal type: two-line system 4-20 mA / three-wire system 4-20 mA;
- Power supply voltage: 18 - 36 Vdc, typical 24 Vdc;
- Range of pressure: -0.1-4MPa;
- Long-term stability: 0.1% FS/year;
- Temperature drift: 0.02% FS / °C (within the -40 to 80°C range);
- Protection level: IP65;
- Pole material: imported PFA;
- Pole diameter: $\Phi 25$ mm;
- Material of fixing screw: SUS 304;
- Fixation method: thread installation M52 * 3.
- Dimension tolerance: ± 3 mm.

The YW02-D53 type selection table

(Encoding format: YW02-D53-①-②-③-④-⑤)

encoding ①	Detective diameter	Detective material	Medium temperature and pressure	
A	Φ16	FEP	-40℃--120℃, 2.5 MPa below	
B	Φ16	FEP	- 100℃ - 120℃, below 4 MPa	
C	φ16	enter port PFA	-200℃ - -250℃, below 4 MPa	
D	φ25	enter port PFA	-200℃ - -250℃, below 4 MPa	
encoding ②	way to install			
1	Outer thread M27 * 2			
2	Outer thread M33 * 2			
3	Outer thread M52 * 3			
F	Flange connection, flange code such as DN50—fill in F50, usually according to the HG / T 20592-2009 standard, the material with the same joint material			
encoding ③	protector tube			
	No protection tube (default)			
1	With a φ 27 stainless steel protective pipe			
2	With a Φ 45 stainless steel protective pipe			
encoding ④	Output signal type	Power voltage range	The power supply voltage is recommended	
1	4-20 mA in two lines	DC18 – 36V	DC24V	
2	4-20 mA three-line system	DC12-28V	DC24V	
code ⑤	Order Length (mm)	remarks		
	Sensor total length / up / down blind area	Sensor total length is required; the upper and lower blind areas are filled according to the order requirements; special orders are required, and General product blind areas are not filled		
Note: This series of products can be 6 m without a protection pipe, 6 m with a 27 mm protection pipe, and 10 m with a 45 mm protection pipe				

Selection example: YW02-D53-D-3-2-1-2000/300/60 selection description: industrial enhanced universal liquid level sensor, electrode diameter 25 mm, □ PFA material, medium temperature-200℃—250℃, pressure 4 MPa M52*3 thread installation, add φ 45 stainless steel protection pipe, two lines of 4-20 mA output, total length of sensor 2000 mm, upper blind area 300 mm, lower blind area 60 mm

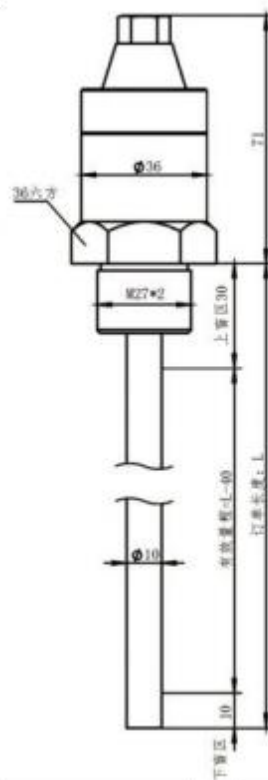
YW02-D5 Universal (object) level sensor

■ Product series (IV) YW02-D54 anti-corrosion type industrial liquid level meter

■ The YW02-D54-A compact type



Picture of real products



External size diagram

Technical Parameter:

- Order length L: 50 - 2000 mm;
- Accuracy: absolute error ± 3 mm ($L < 300$ mm), accurate degree grade is 1.0 ($300 < L < 700$ mm), accuracy grade is 0.5 ($700 < L < 2000$ mm);
- Measured temperature: -40 to 120°C;
- Pole temperature resistance: -60-150°C;
- Signal type: 4-20 mA / 0-5V / RS485 / CAN;
- Power supply voltage: (4-20 mA) 12 - 28 Vdc, typical 24 Vdc; (0-5V/RS485/CAN) 4.5-36Vdc; customized according to user requirements in special cases;
- Operating current: (0 - 5V / RS485 / CAN) 5 - 10 mA.
- Pressure range: -0.1-0.6MPa;
- Long-term stability: $< 0.1\%$ FS/year;
- Temperature drift: 0.02% FS / °C (within 40 - 80 °C range);
- Protection level: IP68;
- Pole exploration material: PFA;
- Pole diameter: $\varnothing 10$ mm;
- Shell and fixing screw material: PTFE;
- Fixed method: thread installation M27 * 2;
- Size tolerance: ± 3 mm .

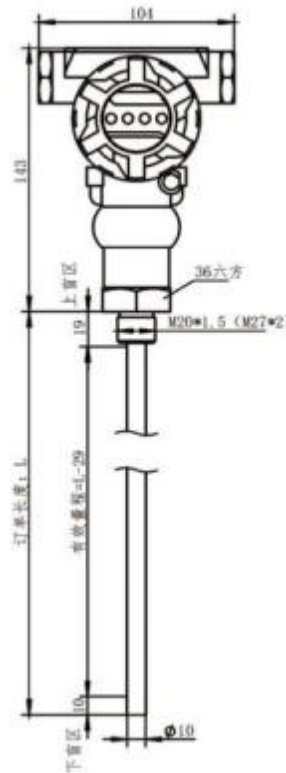
YW02-D5 Universal (object) level sensor

■ Product series family (IV) YW02-D54 anti-corrosive type of industrial liquid level gauge

■ YW02-D54-B Industrial high-standard type



Picture of real products



External size diagram

Technical Parameter:

- Order length L: 50 - 2000 mm;
- Accuracy: the absolute error is ± 3 mm (L 300 mm), the accurate degree grade is 1.0 (300 < L 700 mm), accuracy grade is 0.5 (700 < L 2000 mm);
- Measured temperature: -40 to 120°C;
- Pole temperature resistance: -60-150°C;
- Signal type: two-line system 4-20 mA / three-wire system 4-20 mA;
- Power supply voltage: 18 - 36 Vdc, typical 24 Vdc;
- Range of pressure: -0.1 - 0.6 MPa;
- Long-term stability: 0.1 % FS / year;
- Temperature drift: 0.02% FS / °C (within the -40 to 80°C range);
- Protection level: IP65;
- Pole detection material: PFA;
- Pole diameter: ϕ 10mm;
- Material of fixing screw: PTFE;
- Fixed method: thread installation M27 * 2 or M20 * 1.5;
- Size tolerance: ± 3 mm.

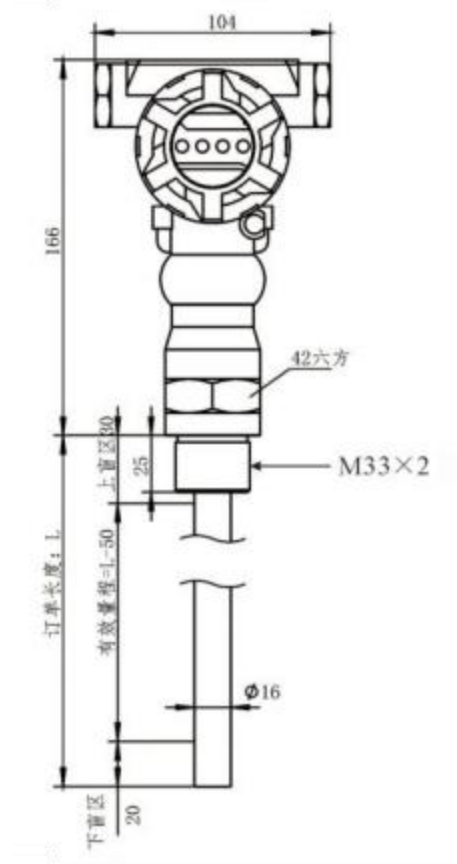
YW02-D5 Universal (object) level sensor

■ Product series (Ⅳ) YW02-D54 anti-corrosion type industrial liquid level meter

■ YW02-D54-C Industrial enhancement



Picture of real products



External size diagram

Technical Parameter:

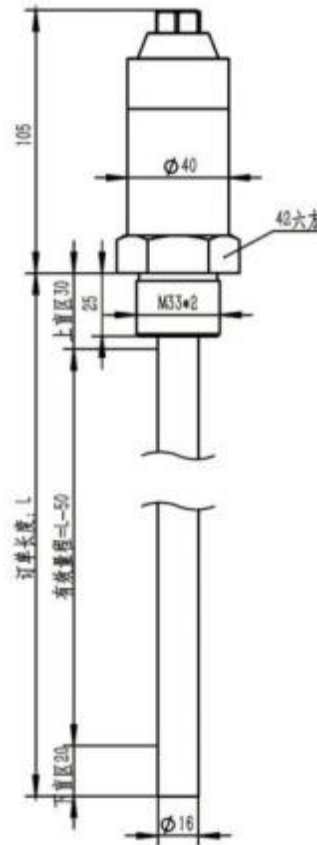
- Order Length L: 100 – 6000 mm;
- Accuracy: the absolute error is ± 3 mm (L 300 mm), the accurate degree grade is 1.0 (300 < L 700 mm), and the accuracy grade is 0.5 (700 < L 2000 mm);
- Measured temperature: -40 to 120°C;
- Pole temperature resistance: -60-150°C;
- Signal type: two-line system 4-20 mA / three-wire system 4-20 mA;
- Power supply voltage: 18 – 36 Vdc, typical 24 Vdc;
- Range of pressure: -0.1 - 0.6 MPa;
- Long-term stability: <0.1% FS/year;
- Temperature drift: <0.02% FS / °C (within the -40 to 80°C range);
- Protection level: IP65;
- Pole detection material: PFA;
- Pole diameter: $\phi 16$ mm;
- Material of fixing screw: PTFE;
- Fixed method: thread installation M33 * 2;
- Size tolerance: ± 3 mm.

YW02-D5 Universal (object) level sensor

- Product family (IV) YW02-D54 Anti-corrosive type of industrial liquid level gauge
- YW02-D54-D Industrial high-protective type



Picture of real products



External size diagram

Technical Parameter:

1. Order Length L: 200 - 10000 mm;
2. Accuracy: absolute error ± 5 mm (L 500 mm), accuracy level 1.0 (500 < L < 1000 mm), accuracy level 0.5 (1000 < L < 10000 mm);
3. Measured temperature: -40 to 120°C;
4. Pole temperature resistance: -60-150°C;
5. Signal type: two-line system 4-20 mA / three-wire system 4-20 mA;
6. Power supply voltage: 18 - 36 Vdc, typical 24 Vdc;
7. Range of pressure: -0.1 - 0.6 MPa;
8. Long-term stability: 0.1 % FS/year;
9. Temperature drift: <0.02% FS/°C (within the range of -40 to 80°C);
10. Protection level: IP 68;
11. Probe material: imported PFA;
12. Pole diameter: $\phi 1.6$ mm;
13. Shell material: high-strength nylon;
14. Fixed mode: thread installation M332;
15. Dimension tolerance: ± 3 mm .

The YW02-D54 type selection table

(Encoding format: YW02-D54-①-②-③)

encoding ①	Shell shape, joint material, thread specification, probe diameter, protection grade, maximum allowable range		
A	φ 36 pantetraflo shell, outer thread M27 * 2, Φ 10 pole probe, IP68, up to 2 m		
B	2088 aluminum alloy housing, tetrahedron joint, M27 * 2, φ 10 electrode probe, IP65, up to 2 m		
C	2088 aluminum alloy housing, tetrahedron joint, M33 * 2, Φ 16 electrode probe, IP65, up to 6 m in length		
D	Φ 40 Nylon shell, M33 * 2 thread, Φ 16 pole probe, IP68, up to 6 m		
code ②	Output signal type	Power voltage range	The power supply voltage is recommended
1	4-20 mA in two lines	DC12-28V	DC24V
2	4-20 mA three-line system	DC12-28V	DC24V
3	RS485	DC4.5-36V	DC5V\DC12V\DC24V
4	RS232	DC4.5-36V	DC5V\DC12V\DC24V
5	TTL	DC4.5-36V	DC5V\DC12V\DC24V
6	CAN	DC4.5-36V	DC5V\DC12V\DC24V
7	0-3.3V	DC4.5-36V	DC5V\DC12V
8	0-5V	DC9-36V	DC12V\DC24V
9	0-10V	DC12-36V	DC12V\DC24V
code ③	Order Length (mm)	remarks	
	Sensor total length / up / down blind area	Sensor total length is required; the upper and lower blind areas are filled according to the order requirements; special orders are required, and General product blind areas are not filled	

Selection example: YW02-D54-A-1-1500/300/30 Type selection description:
anti-corrosion universal liquid level sensor, full tetrafluoro shell, M27 * 2 thread

installation, 4-20 mA two-line signal output, sensor total length of 1500 mm, upper blind area 300 mm, lower blind area 30 mm

YW02-D5 Universal (object) level sensor

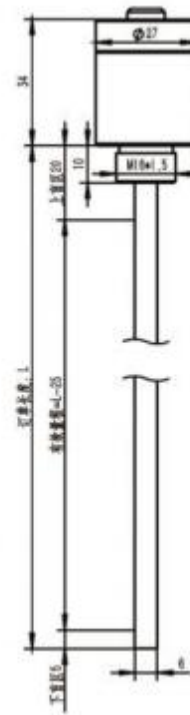
■ Product family (5) YW02-D55 micro-liquid level sensor

■ YW02-D55-A Micro-fluid level sensor

The minimum range can be 10 mm, suitable for measuring conductive media



Picture of real products



External size diagram

Technical Parameter :

1. Order Length L: 20 – 300 mm;
2. Accuracy: absolute error ± 2 mm ($L < 300$ mm);
3. Medium temperature: $-40 - 85^{\circ}\text{C}$;
4. Signal type: 0 – 5V / RS485;
5. Supply voltage: 4.5 – 36 Vdc
6. Working current: 5 – 10 mA.
7. Protection level: IP68;
8. Pressure range: -0.1-0. 1MPa;

YW02-D5 Universal (object) level sensor

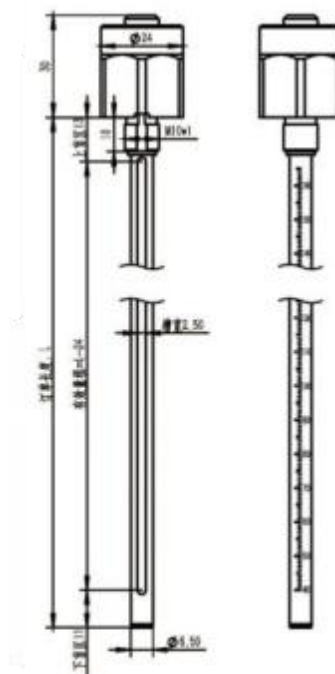
■ Product family (5) YW02-D55 micro-liquid level sensor

■ YW02-D55-B Micro-fluid level sensor

Small appearance · minimum range can be 20 mm, suitable for measuring a variety of viscosity is not high conductive or non-conductive liquid



Picture of real products



External size diagram

Technical Parameter:

1. Order Length L: 30-300mm;
2. Accuracy: absolute error ± 2 mm (L 300 mm);
3. Medium temperature: $-60 - 120^{\circ}\text{C}$;
4. Signal type: 0 - 5V/RS485;
5. Supply voltage: 4.5-36 Vdc
6. Working current: 5-10 mA.
7. Protection level: IP68;
8. Pressure range: -0.1-0.1 MPa;

■ Cable wiring definition of YW02-D5 series products

■ Definition of conventional sensor wiring without a display screen:

Lead color	Lead instructions
red	Power supply positive pole V + 4-20 mA positive pole
black	Power supply negative V-4-20 mA negative GND
yellow	TTL-RX RS232 -RXD RS485 -ACAN-H single-line communication / calibration
green	TTL-TX RS232 -TXD RS485 -CAN-L voltage, Cr, current signal output
white	Switch volume output 1 (low report)
palm	Switch volume output 2 (high report)

■ Connection definition of temperature and liquid level:

Two-wire 4-20 mA system:

Liquid level—red + / black- / white communication;

Temperature—yellow + / green— / brown

communication Three-wire system 4-20 mA and two-way voltage output:

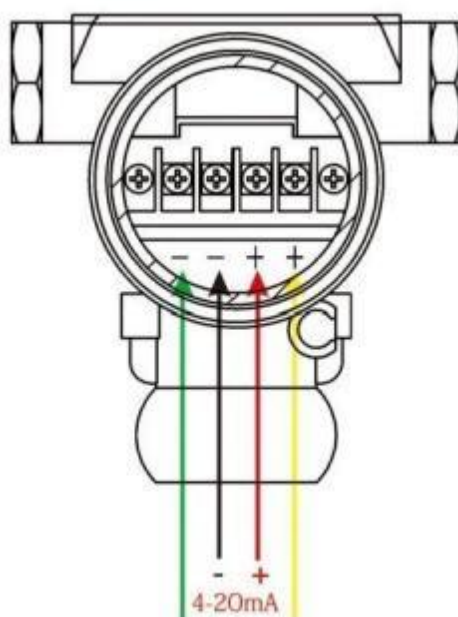
Red—power + Black—power— Yellow—temperature output

Green - liquid level output

White - liquid level communication and calibration

Brown- -temperature communication and calibration

■ 2088 Housing Product Wiring Definition:



B RS485 A

■ Installation method of YW02-D5 series products

The liquid level meter has a variety of installation and fixation methods to adapt to different field conditions. The specific installation is as follows:

1. The sensor is installed on a sealed metal container that can be connected by flange or thread, and the measurement medium is not stirring; liquid impact, violent swing, and other conditions can be inserted for installation, as shown in the following figure: plug-in installation

2. The sensor is installed on the container in the presence of stirring, liquid impact, violent swing, etc., and the sensor can be installed outside the container through the flange or thread, as shown in the following figure: external installation

3. The measurement medium is stirring, liquid impact, violent swing, and other conditions; the container does not have the external installation connection pipe conditions, must be inserted

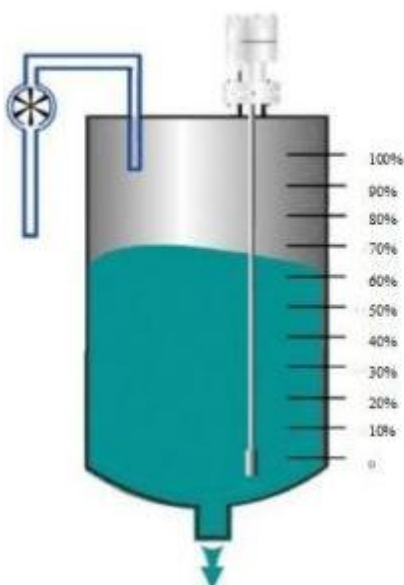
installation. The sensor selection must be equipped with a protective pipe; the range exceeds 1000 mm; the container must be reserved or installed on a fixed support to ensure that the sensor is damaged due to severe impact of liquid.

4. The sensor can be connected with a flange or thread on the non-metal container or the installation surface and the inner side of the container, and the sensor should be preferred to Choose 6054 anti-corrosion type. If you choose other sensors, you must use an auxiliary electrode or add protective sleeve structure, if not the requirement structure, you cannot guarantee the sensor works

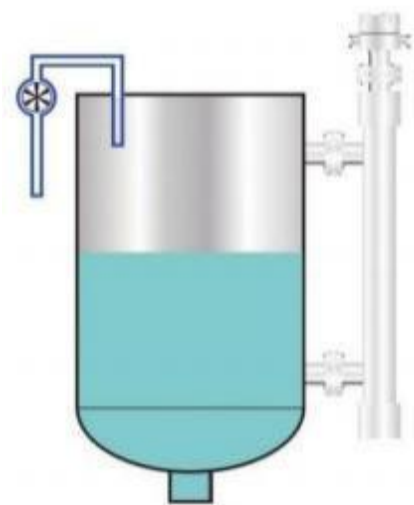
output, need to add an auxiliary electrode (use a metal wire to connect the sensor shell / flange; one end add weight objects into the bottom of the container, wire to reserve a certain length, so as not to pull the wire.

5. The sensor can be used on the open container flange or thread connection installation bracket; sensor options must use an auxiliary electrode or protective sleeve structure; if not required

structure, cannot guarantee the sensor's normal output; need to add an auxiliary electrode (using the metal end of the sensor housing / flange, one end to reserve a certain length, so as not to pull the wire), on the open container, the bracket installation (installation position from the pool wall must be more than 10 cm, otherwise the measurement will be inaccurate.



Schematic diagram of the insertion-type installation



Schematic diagram of the external-type installation

YW02-D7 sanitary level meter

YW02-D7 sanitary liquid level transmitter is a special instrument customized for food and pharmaceutical, beverage processing, brewing industry, biological products, and other industries.

Using standard sanitary grade stainless steel fastjoint and automatic calibration sensor structure, the machine and the medium contact parts are without any sanitary dead corners.

The product adopts the latest automatic calibration technology of Sibo.x , automatic adaptation, automatic calibration, and long-term stable output of true height value . A n t i - r e s i s t a n c e , anti-condensation , anti-bubble, and other anti-pollution ability. It is the ideal product for liquid level measurement in related industries.



YW02-D71



YW02-D72

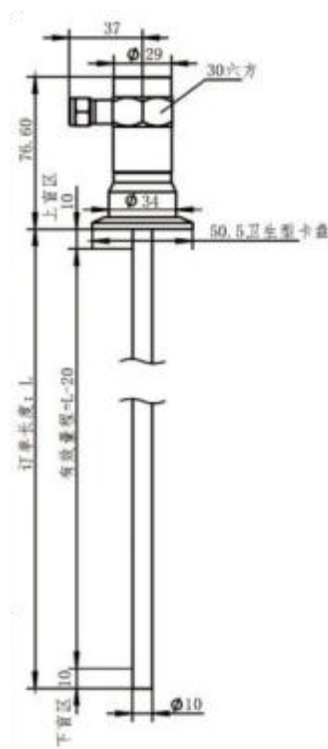


YW02-D73

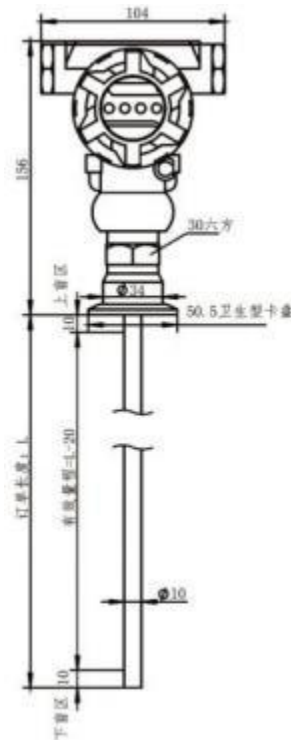
Selection Table

YW02-D7	Sanitary level meter		
	code	Level meter type	
	1		Small type
	2		Industrial standard type (with display)
	3		Industrial enhanced (with display)
	code		output signal
	1		Simog signal 4 ~ 20 mA second line
	2		485 Communication + 4 ~ 20 mA
	code		Hoop size
			Size code (e. g. 1.5 inch- -fill 1.5)
	code		range
			Total length / actual range
YW02-D7 1- -2- -1.51.5/1 type selection			

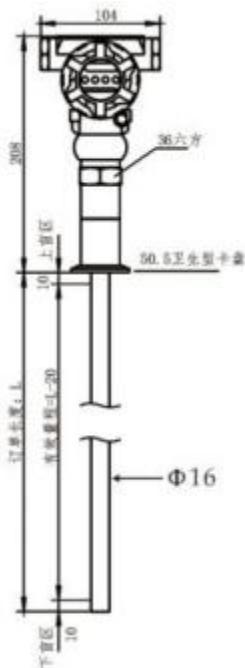
YW02-D7 The dimension of sanitary level gauge



YW02-D71



YW02-D72



YW02-D73

Performance Index

- Operating voltage: 18 - 36 V
 - Output signal: a two-wire system of 4 - 20 mA
- Accuracy: $\pm 0.5\%$
- Explosion-proof grade: ExiaIICT6
- Working pressure: -0.1 - -1.6 MPa
- Measurement range:
 - 6071 / 6072: Max 2 m
 - 6073: Max 6 m
- Measurement period: 0.1 seconds
- Ambient temperature: -40°C - -85°C
- Medium temperature: -60°C - -120°C

YW02-D9 Capacitive (material) level switch

This is a capacitive location switch. Due to the use of a self-designed special chip and a unique algorithm, combined with the built-in double electrodes, it realizes the capacitive location switch of the environment; it has the self-setting function of operating parameters, thus realizing the "fool-proof" type operation button to complete the operation. Fully embodies the perfect combination of high quality and easy to operate! Not only suitable for oil, water, sewage, acid, alkali, and other liquid position control materials, but also suitable for granular, powder, and other materials position control. The shape of the sensor is rod type, and the exterior material is polytetrafluoroethylene, which has extremely high reliability.

- Output signal: RS485 + two-way NPN open-circuit output
- Operating voltage: 5 - 36 V
- Accuracy: $\pm 1\%$
- Explosion-proof grade: ExiaIICT6
- Working pressure: -0.1 - -4 MPa
- Measurement range: a maximum of 2 m
- Readable parameters: liquid level height / liquid temperature / ambient temperature / switch status
- Ambient temperature: -40 °C - -85 °C
- Medium temperature: -60 °C - -120 °C
- Installation thread: M20 $\times$ 1.5
- Pole diameter: 10



- Output signal: RS485 + three-wire system 4-20 mA + two NPN or two relay outputs
- Operating voltage: 9 - 36 V
- Accuracy: $\pm 2\%$
- Explosion-proof grade: ExiaIICT 6
- Working pressure: -0.1 - -0.6 MPa
- Measurement range: a maximum of 0.5 m
- Readable parameters: liquid level height / liquid temperature / ambient temperature / switch status
- Ambient temperature: -40 °C - -85 °C
- Medium temperature: -200 °C - -250 °C
- Installation thread: G1 $\frac{1}{2}$
- Pole diameter: 40

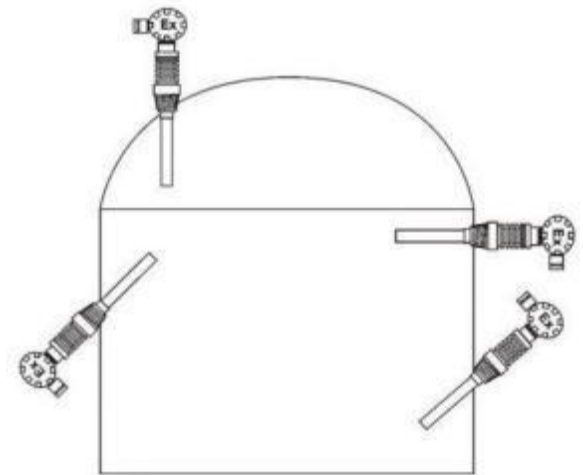
YW02-D9 Capacitive (material) level switch

>>>

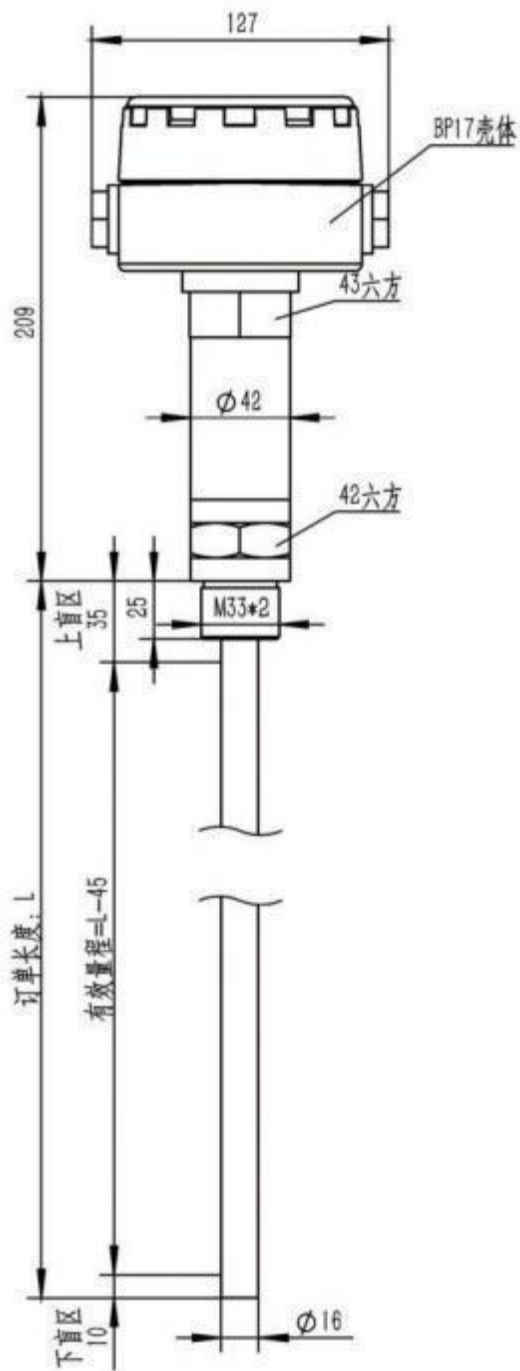


- Output signal: RS485 + three-wire system 4~20 mA + two NPN or two relay outputs
- Operating voltage: 9-36 V
- Accuracy: $\pm 0.5\%$
- Explosion-proof grade: ExiaIICT 6
- Working pressure: -0.1 - -0.6 MPa
- Measurement range: a maximum of 6 m
- Readable parameters: liquid level height / liquid temperature / ambient temperature / switch status
- Ambient temperature: -40°C - -85°C
- Medium temperature: -200°C - -250°C
- Installation thread: M33*2
- Pole diameter: 16

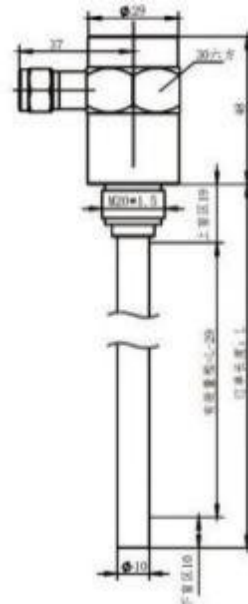
1. The effective range, up and down the blind area
2. Pressure, temperature, and media type
3. Installation method (thread specification)
4. Several alarm points (1 or 2)
5. Location of the first alarm point (percentage of range; default 30%)
6. The first alarm mode (high report / low report, default low report)
7. Status of the first alarm switch (off/on, default on)
8. Location of the second alarm point (percentage of range, default 70%)
9. The second alarm method (high report / low report, default high report)
10. Status of the second alarm switch (off/on, default on)
11. Alarm return difference value (percentage of range, default 10%)



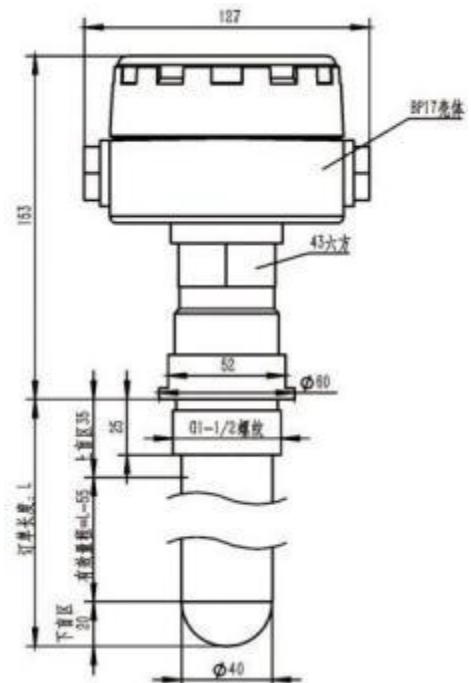
YW02-D9 capacitive type (material) liquid level switch overall dimensions



YW02-D92

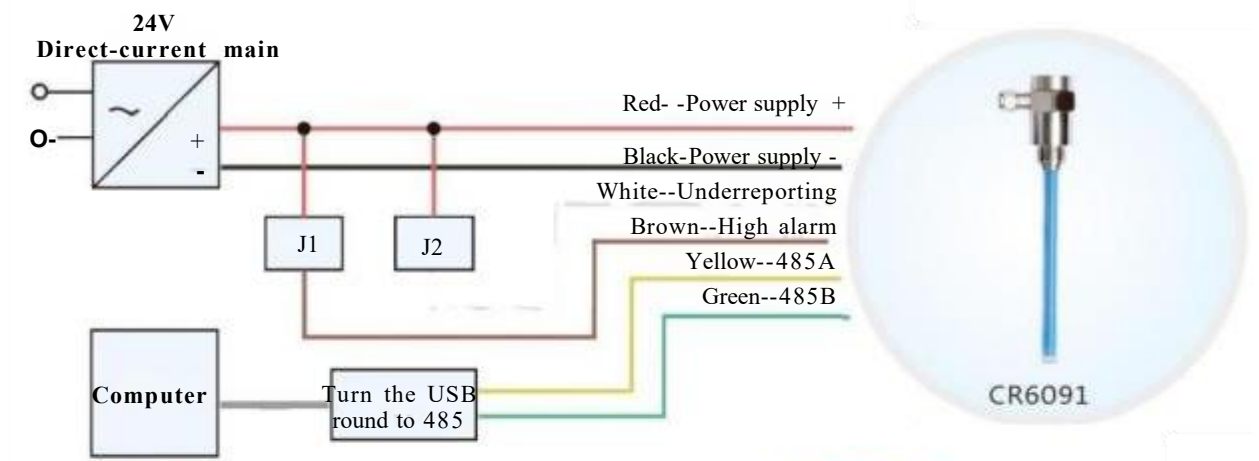


YW02-D91

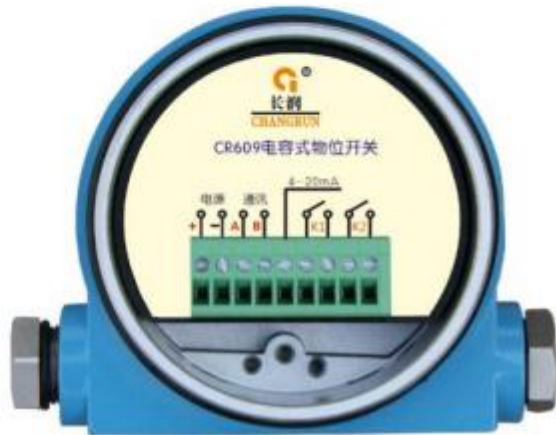


YW02-D93

YW02-D9 Capacitive type (material) liquid level switch wiring diagram



YW02-D92 (6093) Relay Output>>



YW02-D92 (6093) Triode Open Output>>



Production capacity and quality control

The company currently has precision CNC machine tools, four axis machining centers, automatic patch production line, laser welding machine, high and low temperature alternating damp and heat test box, optical image measuring instrument and all kinds of new complete sets of technology and equipment, implements the key materials and key parts of independent design and manufacture, has now formed an annual output of 1 million sets of all kinds of sensors, instruments and data terminal production capacity.

Sibo.x company takes "continuous improvement, customer satisfaction" as the quality policy, starts from the source, attaches importance to process control, and provides customers with excellent products and systems. Passed the ISO 9001:2015 and IATF 16949 quality system certification. It is a qualified supporting supplier of Shaanxi Automobile, Yutong, Jinlong Bus, and other large automobile factories, and the designated product supplier of the automobile energy-saving and consumption-reduction research project of the Scientific Research Institute of the Ministry of Communications.



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