

Flowmeter

Strength Source Manufacturer

Plastic Float Flowmeter, Glass Rotameter,
Electromagnetic Flowmeter, Turbine Flowmeter.

With over ten years of R&D experience,
supplying high-quality pressure gauges to the world.



Plastic Pipe Flowmeter

Long-Tube

Model		Measurement Range	Medium	Notes
LZT-GZBQH-15S06L		6-60L/h	Water	Without Guide Rod
LZT-GZBQH-15S10L		10-100L/h		
LZT-GZBQH-15S16L		16-160L/h		
LZT-GZBQH-15S25L		25-250L/h		
LZT-GZBQH-15S40L		40-400L/h		
LZT-GZBQH-15S60L		60-600L/h		
LZT-GZBQH-15S100L		100-1000L/h		
LZT-GZBQH-25S06L		60-600L/h		
LZT-GZBQH-25S10L		0.1-1m ³ /h		
LZT-GZBQH-25S16L		0.16-1.6m ³ /h		
LZT-GZBQH-25S25L		0.25-2.5m ³ /h		
LZT-GZBQH-25S30L		0.3-3m ³ /h		
LZT-GZBQH-40S04L		0.4-4L/h		Without Guide Rod
LZT-GZBQH-40S06L		0.6-6m ³ /h		
LZT-GZBQH-50S04L		0.4-4m ³ /h		
LZT-GZBQH-50S06L		0.6-6m ³ /h		
LZT-GZBQH-50S10L		1-10m ³ /h		
LZT-GZBQH-50S16L		1.6-16m ³ /h		With Guide Rod
LZT-GZBQH-100 LZT-GZBQH-125 LZT-GZBQH-150	S06L/F	12-60m ³ /h		Flange Connection With Guide Rod
	S09L/F	14-90m ³ /h		
	S12L/F	18-120m ³ /h		
	S15L/F	20-150m ³ /h		
	S18L/F	25-180m ³ /h		
	S20L/F	25-200m ³ /h		
LZT-GZBQH-200 LZT-GZBQH-250 LZT-GZBQH-300	S20L/F	20-200m ³ /h		
	S25L/F	25-250m ³ /h		
	S30L/F	30-300m ³ /h		
	S35L/F	30-350m ³ /h		
	S40L/F	40-400m ³ /h		



Plastic Pipe Flowmeter

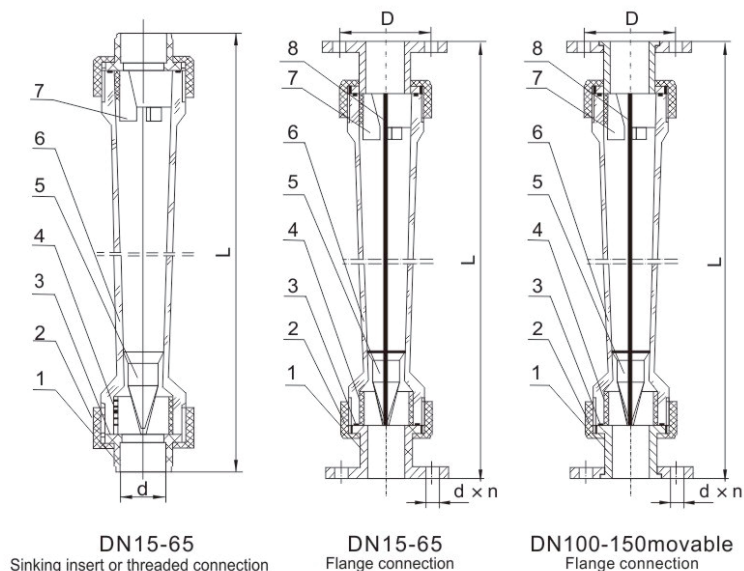
Short-Tube

Model	Measurement Range	Medium	Notes
LZT-GZBQH-15S06S	6-60L/h	Water	With Guide Rod
LZT-GZBQH-15S10S	10-100L/h		
LZT-GZBQH-15S16S	16-160L/h		
LZT-GZBQH-15S25S	25-250L/h		
LZT-GZBQH-15S40S	40-400L/h		
LZT-GZBQH-15S60S	60-600L/h		
LZT-GZBQH-15S100S	100-1000L/h		
LZT-GZBQH-25S06S	60-600L/h		
LZT-GZBQH-25S10S	0.1-1m ³ /h		
LZT-GZBQH-25S16S	0.16-1.6m ³ /h		
LZT-GZBQH-25S25S	0.25-2.5m ³ /h		
LZT-GZBQH-25S30S	0.3-3m ³ /h		
LZT-GZBQH-32S04S	0.4-4m ³ /h		
LZT-GZBQH-32S06S	0.6-6m ³ /h		
LZT-GZBQH-32S10S	1-10m ³ /h		
LZT-GZBQH-40S06S	0.6-6m ³ /h		
LZT-GZBQH-40S10S	1-10m ³ /h		
LZT-GZBQH-40S16S	1.6-16m ³ /h		
LZT-GZBQH-50S06S	0.6-6m ³ /h		
LZT-GZBQH-50S10S	1-10m ³ /h		
LZT-GZBQH-50S16S	1.6-16m ³ /h		
LZT-GZBQH-65S16S	1.6-16m ³ /h		
LZT-GZBQH-65S25S	5-25m ³ /h		
LZT-GZBQH-65S40S	8-40m ³ /h		
LZT-GZBQH-65S60S	12-60m ³ /h		
LZT-GZBQH-80S25S/F	5-25m ³ /h		Flange Connection With Guide Rod
LZT-GZBQH-80S40S/F	8-40m ³ /h		
LZT-GZBQH-80S60S/F	12-60m ³ /h		



Part Names and Materials

No.	Main Parts	Material
1	Connection Tube	UPVC
2	Nut	ABS
3	O-Ring	NBR
4	Bottom Stop Shaft	PE
5	Float	ABS
6	Meter Tube	AS
7	Top Stop Shaft	PE
8	Guide Rod	304SS or 316SS



Dimension Diagrams

Nominal Diameter (mm)	Long Tube Size			Short Tube Size			Flange Connection Size			
	L	d		L	d		L		D	d × n
		Sinking Insert	Thread		Sinking Insert	Thread	Long Tube	Short Tube		
15	280	φ 20	G1/2 "	200	φ 20	G1/2 "	330	250	65	14×4
25	380	φ 32	G3/4 "	226	φ 32	G3/4 "	445	291	85	14×4
32	—	—	—	288	φ 40	G1 "	—	351	100	18×4
40	430	φ 50	—	341	φ 50	—	505	416	110	18×4
50	435	φ 63	G1-1/2 "	341	φ 63	G1-1/2 "	519	430	125	18×4
65	—	—	—	430	φ 75	G2 "	—	522	145	18×4
80	—	—	—	505	φ 90	—	540		160	18×8
100	—	—	—	—	—	—	555		180	18×8
125	—	—	—	—	—	—	555		210	18×8
150	—	—	—	—	—	—	555		240	22×8

Ordering

Use the Following Guide to Determine the Specific Product You Require

- LZT- GZBQH S L: Long tube type LZT- GZBQH S S: Short tube type
- Connection: /F : Flange type (DN15-65 flange connection can also be made of PVC)
/N : Thread
/□ : Sinking insert (No suffix added, But If you want to customize PVC connection tube of ANSI or JIS standards, please specify tube's outer diameter.)
- Special requirements:
If you want anticorrosive type meter (guide rod lining F46), add suffix /F46 after normal item code when order.
If you want meter with upper and lower limit alarm function, add suffix / K1 (lower limit), K2 (upper limit) after normal item code when order.
- DN15 series is usually equipped with 4 parts PVC pipe or 6 parts PVC pipe

Hygienic Glass Rotameter

Overview

This series of glass rotor flowmeter is mainly composed of a conical glass tube, float, upper and lower outer nuts and stainless steel pipe connection and combination. Easy to install, suitable for drinking water, juice, milk, pure water treatment and other fields.

There are three options for the upper and lower connections, threaded, clamp, and flange.

Material: 304SS or 316SS

Accuracy: $\pm 2.5\%$

Working pressure: $\leq 0.6\text{MPa}$

Working temperature: $\leq 100^\circ\text{C}$

Can be equipped with upper and lower limit alarm bistable contact switch



Operating Principle

The main measurement component of the flowmeter is a cone tube installed vertically with the small end downward and the large end upward, and a float that can move up and down.

When the fluid flows through the cone tube from bottom to top, a pressure difference is generated between the float's upper and lower parts, causing the float to rise under the effect of this pressure difference.

When the upward force, the buoyancy force on the float, and the viscous lift force are equal to the float's gravity, the float is in a balanced position.

Consequently, there is a certain proportionate relationship between the fluid flow through the flowmeter and the float's ascending height, that is, the flowmeter's flow area, and the float's position height can serve as a measurement of the flow.

The reading of the flowmeter is read according to the reading position shown in Figure 1

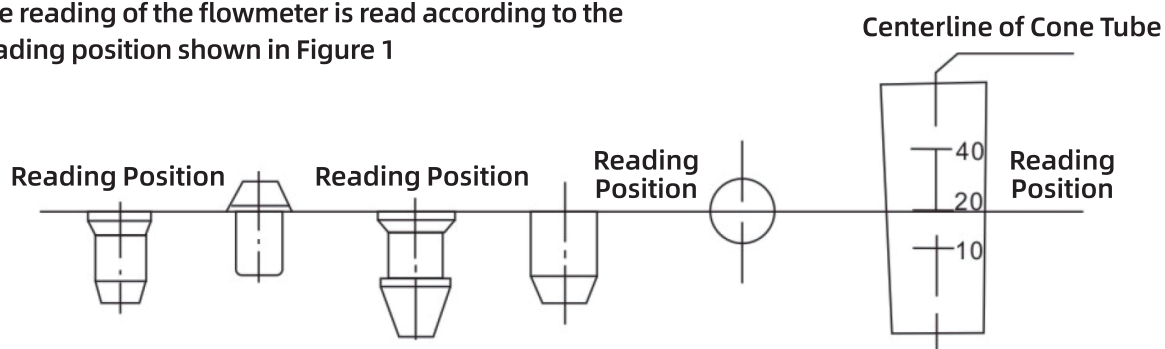


Figure 1 Diagram of various float reading positions

● Flow Range

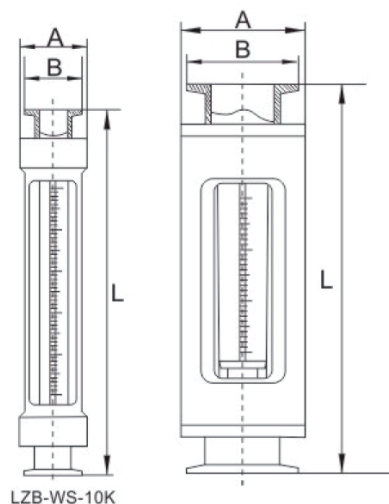
Model	Measurement Range			
	Liquid	Alarm Signal	Gas	Alarm Signal
LZB-GZBQH-WS-10G LZB-GZBQH-WS-10K LZB-GZBQH-WS-15F	4~40L/h	/	100~1000L/h	/
	6~60L/h		160~1600L/h	
	10~100L/h		0.25~2.5m³/h	
	16~160L/h		0.6~6m³/h	
	25~250L/h	Can Be Added		
LZB-GZBQH-WS-20G/25G LZB-GZBQH-WS-20K/25K LZB-GZBQH-WS-20F/25F	0.3~5L/min	/	1~10m³/h	/
	1~10L/min	Can Be Added	2~20m³/h	
	1.5~15L/min	/	3~30m³/h	
	2~20L/min	Can Be Added	5~50m³/h	Can Be Added
	3~30L/min		8~80m³/h	
	4~40L/min		25~100m³/h	
	5~50L/min		36~180m³/h	
	12~60L/min			
	20~100L/min			
LZB-GZBQH-WS-40G LZB-GZBQH-WS-40K LZB-GZBQH-WS-40F LZB-GZBQH-WS-40/50F	0.6~6m³/h	Can Be Added	18~180m³/h	/
	1~10m³/h		30~300m³/h	
	2~16m³/h		60~480m³/h	
	5~25m³/h		150~750m³/h	
	5~30m³/h			
LZB-GZBQH-WS-50G LZB-GZBQH-WS-50K LZB-GZBQH-WS-50F LZB-GZBQH-WS-50/65F LZB-GZBQH-WS-50/80F	4~40m³/h	/	/	/
	5~50m³/h			
	6~60m³/h			
	8~80m³/h			

● Selection

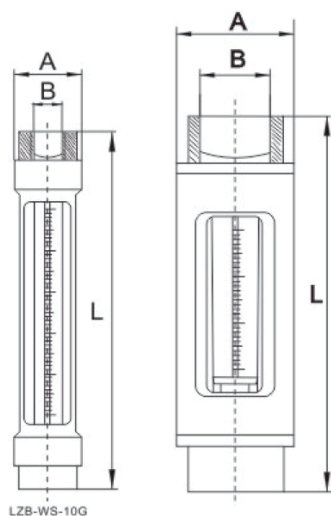
LZB - GZBQH - WS - / / / / /

10: DN10mm	G: Threaded	Flow Range	R1: 304SS	A: Gas	K1: Lower Limit Alarm
20: DN20mm	K: Clamp		R0: 316SS	L: Liquid	K2: Upper Limit Alarm
25: DN25mm	F: Flange				
40: DN40mm					
50: DN50mm					
65: DN65mm					

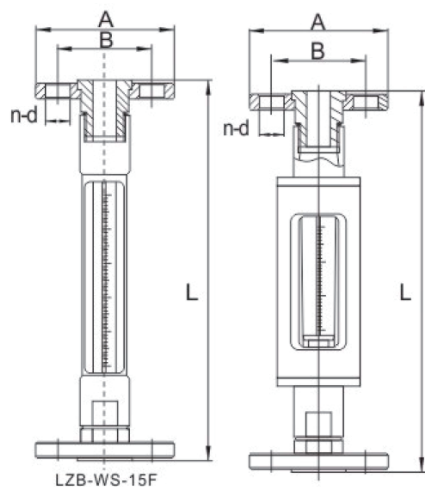
Example of selection: LZB-GZBQH-WS-20K/4-40L/min/R1/L/K1



Model	LZB-GBZQH-WS Clamp Connection Parameters (mm)		
	A	B	L
LZB-GBZQH-WS-10K	□27	□25.4 □ Can Be Customized □50.5□	200
LZB-GBZQH-WS-20K/25K	□53	□50.5 □ Can Be Customized □64□	180
LZB-GBZQH-WS-40K	□73	□64 □ Can Be Customized □50.5□□77□	280
LZB-GBZQH-WS-50K	□96	□77 □ Can Be Customized □64□□91□□106□	350



Model	LZB-GBZQH-WS Threaded Connection Parameters (mm)		
	A	B	L
LZB-GBZQH-WS-10G	□27	G1/4"	200
LZB-GBZQH-WS-20G	□53	G3/4"	200
LZB-GBZQH-WS-25G	□53	G1"	200
LZB-GBZQH-WS-40G	□73	G1-1/2"	280
LZB-GBZQH-WS-50G	□96	G2"	350
LZB-GBZQH-WS-65G	□96	G2-1/2"	350

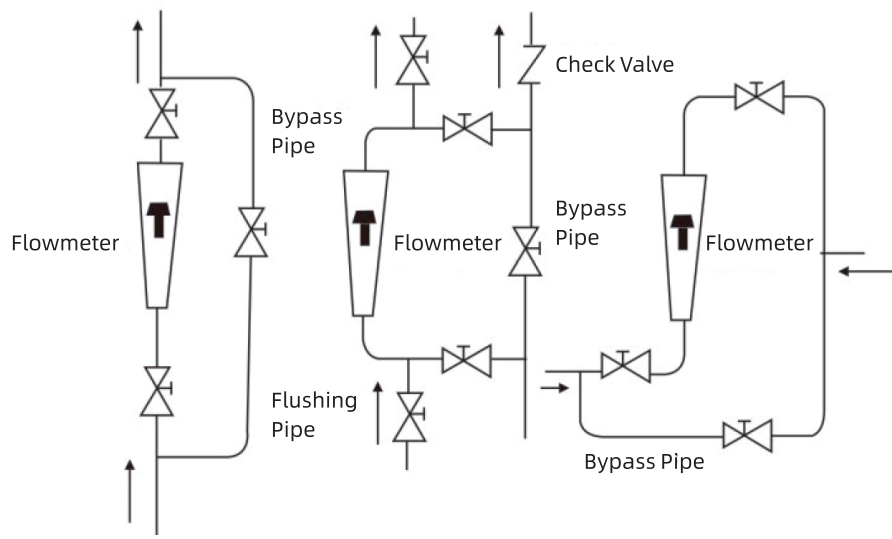


Model	LZB-GBZQH-WS Flange Connection Parameters (mm)			
	A	B	n-d	L
LZB-GBZQH-WS-15F	□90	□65	4-□14	245
LZB-GBZQH-WS-20F	□105	□75	4-□14	245
LZB-GBZQH-WS-25F	□110	□85	4-□14	245
LZB-GBZQH-WS-40F	□150	□110	4-□18	330
LZB-GBZQH-WS-40/50F	□165	□125	4-□18	330
LZB-GBZQH-WS-50F	□165	□125	4-□18	390
LZB-GBZQH-WS-50/65F	□185	□145	8-□18	390
LZB-GBZQH-WS-50/80F	□200	□160	8-□18	390

★ Special Connection Requirements Can Be Customized

Installation and Use

1. When unpacking the flowmeter, carefully check to determine if there is any damage during transportation. For flowmeters with guide rods, remove the supporting plastic rods or other fillers that prevent the float from moving, and check if the float can slide up and down freely.
2. The flowmeter must be installed in a vertical position (the angle between the center of the flowmeter and the plumb line does not exceed 5°) and properly supported to prevent any stress from being transmitted. For new pipelines, the pipeline should be flushed clean before installing the flowmeter. When installing, the inlet is always the small end of the cone tube, that is, the end with the smallest numerical scale, and it is located at the bottom.
3. To facilitate the replacement of parts during use, when installing the flowmeter, there should be sufficient space around it.
4. For the needs of maintenance, repair, replacement of the flowmeter, and pipeline cleaning, it is recommended to install the bypass pipe as shown in the figure below when installing the flowmeter.
5. A valve should be installed upstream of the flowmeter, and a regulating valve for adjusting the flow rate should be installed 5-10 times the nominal diameter downstream.
6. To prevent backflow in the pipeline or water hammer damage to the flowmeter, a one-way check valve can be installed after the downstream valve of the flowmeter.
7. If the measured fluid contains large particle impurities or dirt, a filter should be installed upstream of the flowmeter as needed.
8. If the measured main flow is pulsating, causing the float to fluctuate and not measure correctly, the upstream valve of the flowmeter should be fully opened, and an appropriately sized buffer and regulator should be set to prevent backflow or pulsation due to excessive pressure drop.



Bypass Pipe Installation Drawing

Precautions for Use

1. When using the flowmeter, slowly open the upstream valve to full open, and then adjust the flow rate with the regulating valve downstream of the flowmeter. When the flowmeter stops working, slowly close the upstream valve of the flowmeter first, and then close the flow regulating valve of the flowmeter.
2. Avoid sudden changes in the pressure of the measured fluid during use.
3. Read the float reading as shown in Figure 1.
4. If the working diameter (reading edge) of the float is damaged, it should be recalibrated.
5. For a flowmeter in use, if there is any leakage, evenly tighten the gland bolts (or compression caps). At this time, avoid excessive tightening to crush the cone tube. If the above method doesn't work, it is generally that the sealing packing has failed and the cone tube sealing packing should be replaced.
6. The state of the measured fluid (density, temperature, pressure, viscosity, etc.) is different from the graduation state of the flowmeter, and the indicated value must be corrected.

Flowmeter Indication Correction

The fluid and state when the flowmeter is used are often different from those when the flowmeter is graduated. Therefore, the indicated value read when using the flowmeter is not the true flow through the flowmeter. The indicated value must be corrected according to the fluid and state when using to obtain the correct flow.

Our factory's flowmeters are calibrated with water for measuring liquids and with air for measuring gases. The indicated values are graduated according to the volumetric flow rate at the standard state [water at 20°C, air at 20°C, 1.013x10⁵Pa (760mmHg)]. Therefore, the corrections are all based on the graduation at the standard state.

1. Correction when measuring liquids

To find the flow through the flowmeter in the used state:

$$Q_s = Q_N \sqrt{\frac{(\rho_f - \rho_s) \rho_n}{(\rho_r - \rho_n) \rho_s}} \dots\dots\dots (1)$$

In the Formula

- Q_s — Actual Flow Value;
 Q_N — Reading Indication of the Flowmeter;
 ρ_f — Float Density; Stainless Steel Float Takes $7.93 \times 10^3 \text{ kg/m}^3$;
 ρ_N — Density of the Calibration Medium in Standard State
(in this case, the density of water at 20°C , $1 \times 10^3 \text{ kg/m}^3$);
 ρ_s — Density of the Measured Liquid.

2. Correction for Measuring Gases

When the measured gas is dry gas, find the compressed volume flow through the flowmeter in the used state.

$$Q_s = Q_N \sqrt{\frac{\rho_N P_N T_s Z_s}{\rho_{sN} P_s T_{sN} Z_{sN}}} \dots\dots\dots (2)$$

If need to convert it to the flow rate in the standard state, the formula is:

$$Q_{sN} = Q_N \sqrt{\frac{\rho_N P_s T_N Z_s}{\rho_{sN} P_N T_{sN} Z_{sN}}}$$

In the Formula

P_N, T_N, ρ_N — Represent the absolute pressure ($1.013 \times 10^5 \text{ pa}$ (760mmHg), mercury column), thermodynamic temperature [$(273.15 + 20) \text{ K}$], and air density (1.293 kg/m^3) of the calibration medium (i.e., air) in the standard state, respectively.

P_s, T_s, ρ_{sN} — Represent the absolute pressure (at the inlet of the flowmeter), thermodynamic temperature, and density of the measured gas in the standard state when the measured gas is to be measured, respectively.

Z_{sN} — Represents the compression coefficient of the measured gas in the standard state.

Z_s — Represents the compression coefficient of the measured gas at P_s and T_s .

Q_s — Represents the compressed volume flow value of the measured gas at P_s and T_s .

Q_N — Represents the reading indication.

Q_{sN} — Represents the flow value of the measured gas converted to the standard state.

Note: Generally, the compression coefficient is not considered, or $Z_{sN} = Z_s \approx 1$ is taken.

Electro Magnetic Flow-Meter



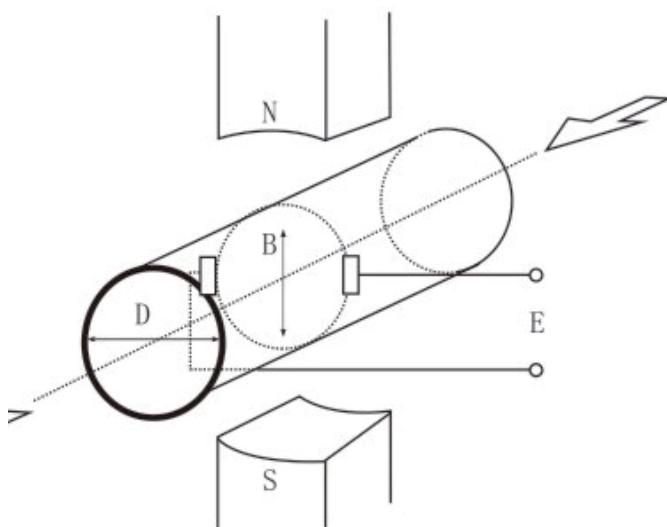
1. Overview

LD-GBQH series Electromagnetic Flowmeter is composed of sensor and converter. It works on Faraday's electromagnetic induction principle, used for the measuring of volumetric flow rate of liquid whose conductance is greater than $5\mu\text{S}/\text{cm}$. It also can measure the corrosive liquids as strong acid, alkali, etc. and two phase (liquid-solid) suspensions as mud, ore pulp, paper pulp, etc. It is widely applied in the field of petroleum, chemical industry, metallurgy, textile, papermaking, environmental protection, food and municipal administration, irrigation project, river dredge, etc.

2. Measuring Principle

According to the Faraday's electromagnetic induction principle, a pair of measuring electrodes are installed on the wall of tube whose axes are perpendicular both to the measuring tube wall axis and the magnetic flux. As the conductive liquid is moving along the tube axis, the conductive liquid cuts the magnetic flux, an induced voltage is produced. This voltage is picked up by the electrodes and is proportional to the flow rate, its value is:

$$E = KBVD$$



E=Induced voltage

K= coefficient related to the distribution of magnetic field etc.

B=magnetic flux intensity

V= average flow velocity of conductive liquid

D= distance between electrodes, (inner diameter of tube)

The induced voltage E is regarded as the flow signal of the sensor and is transmitted to the converter.

After through amplifying, converting, filtration and a series of digital treatment the instantaneous and tanzalizer flow rate are displayed on the LCD. The converter has 4-20mA output, alarm and frequency outputs, and has Rs-485ect. Communication connection.

3.Characteristics

1. No obstacle existed the measuring tube, so the pressure loss is zero, hardly blocked.
2. If the proper electrodes and lining material are adopted, then the request of anticorrosion, wear resistance can be satisfied.
3. The measuring results have no relation with the physical parameters of the liquid, such as pressure, temperature, density, viscosity, conductivity rate (but not below $5\mu\text{S}/\text{cm}$!), etc...it is not influenced by the circumstances, so the accuracy is high, working process is stable and reliable.
4. Modern analog signal conversion technology and high - performance super - large scale integrated chip are adopted to isolate, filter and amplify signal and perform digital processing. Accurate measuring results are displayed.

5. The parameters that affect the measuring results are automatically monitored and corrected (such as zero - drift correction), and the setting and correction of segmented flow coefficient are adopted for the whole range, thus expanding the measurement range, improving the degree of intelligence and measurement accuracy, and greatly improving the stability.
6. With the functions of measuring value power - off protection and over - range alarm, the flow direction of fluid in the sensor can be set. Therefore the installation of sensor is not limited by the flow direction of fluid, and bidirectional flow measurement can be performed.
7. Adopt the dual row flow indicator of back lighted dot array, displays the instantaneous and totaled flow rates, simultaneously, also displays the working status, parameters, measuring units, etc...
8. The measuring range of this flow meter is wide. Its range ability normally is 20:1, generally can reach 30:1 or even larger.
9. This flow meter has multi - functional outputs, can be matched with computer, combined instrument unit; can meet the requirement of printing, communication and networking.

4. Technical Parameters

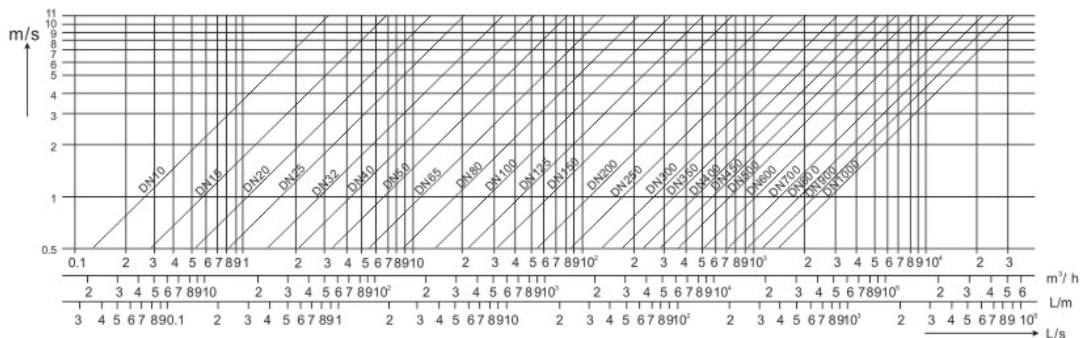
● Main Technial

Conductivity of Medium	> 5μ S/cm.
Velocity	0.3-12m/s
Flow Range	Within the measurement range of flow velocity, the range of volumetric flow rate is programmable, see the table
Accuracy	Measured Value ±0.5%, ±1%
Environment Condition	Ambient Temperature: -10°C-50°C
	Relative Humidity: 5%-90%
Medium Temperature	T ₁ ≤65°C, T ₂ ≤120°C, T ₃ ≤180°C
Working Pressure	DN10-80: PN≤4MPa
	DN100-300: PN≤1.6MPa
	DN350-1000: PN≤1MPa
	Higher pressure can be specially ordered. High pressure optional DN25-150, PN10MPa, 16MPa, 26MPa
Power Supply	220V AC 50Hz (90-245V AC 50Hz) 24V DC (20-36V DC) 3.6V Battery powered
Power Consumption	8W
Protection Grade	Standard Type IP65, special Type IP67 or Ip68
Electrode Material	316L, HC, HB, Pt, Ti, Ta
Liner Material	1. NE 2. PTFE

● Flow Table (Reference Curve Chart.)

Diameter (mm)	Minimum Flow Rate (m ³ /h)	Selection of Usual Full-Scale Range (m ³ /h)
15	0.20	1.0,1.2,1.6,2.0,3.0,4.0,5.0,6.0
20	0.35	2.0,2.5,3.0,4.0,5.0,6.0,8.0,10.0,12.0
25	0.55	3.0,4.0,5.0,6.0,8.0,10,12.0,14.0,16.0
32	1.0	5.0,6.0,8.0,10.0,12,16,20,25
40	1.5	8.0,10.0,12,16,20,25,30,40
50	2.5	12,16,20,25,30,40,50,60,70
65	4.0	20,25,30,40,50,60,80,100,120
80	5.5	25,30,40,50,60,80,100,120,160
100	8.5	40,50,60,80,100,120,160,200,250
125	14	60,80,100,120,160,200,250,300,400
150	20	100,120,160,200,250,300,400,500,600
200	35	160,200,250,300,400,500,600,800,1000
250	55	200,250,300,400,500,600,800,1000,1200,1600
300	80	300,400,500,600,800,1000,1200,1600,2000,2500

● Diagram related to the diameter, flow velocity and flow-rate



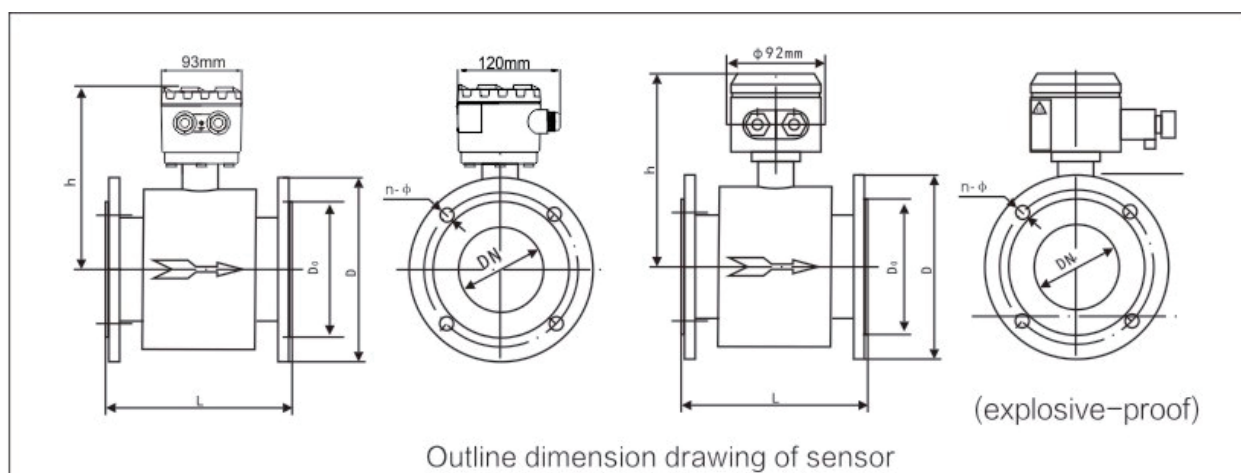
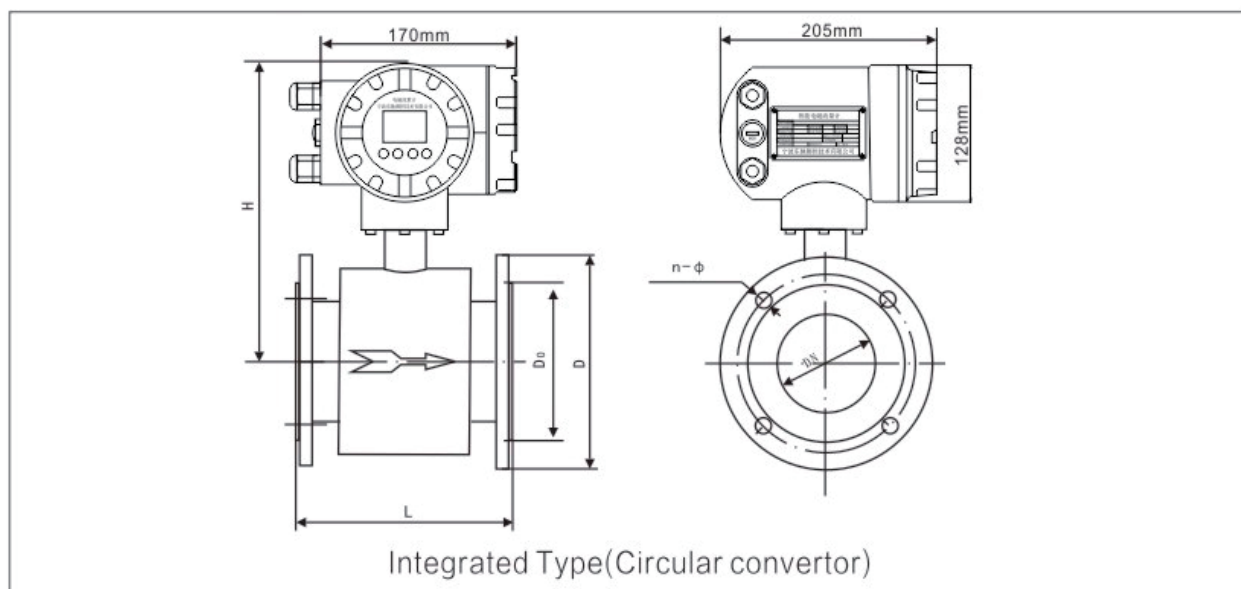
Normally 2-6m/s flow velocity of the medium is advisable. If specially required, the minimum shall not lower than 0.3m/s, the maximum not higher than 12m/s. Too low flow velocity will cause the going-down of the electromagnetic signal, which will lead to a decrease of the measurement accuracy. In case the fluid contains solid particles, it is necessary to set the flow velocity at lower than 3m/s. For viscous liquids the corresponding flow velocity shall be at a higher value, which is helpful for automatically eliminating the dirts on the electrodes and also favorable to improving the measurement accuracy.

Formula to calculate the relation between the flow rate, flow velocity and diameter:

$$Q = \frac{3600}{4} \pi D^2 V = 900 \pi D^2 V \quad Q: \text{Flow rate (m}^3/\text{h)} \quad V: \text{Flow Velocity (m/s)} \quad D: \text{Diameter (m)}$$

After the diameter of the flow rate being determined, it is necessary to increase as the full measurement range value (by 15%-30%) according to the preset maximum technological flow. In the practical use, shall do best not to allow the flow to exceed the full range value, otherwise, the flow measurement of this part will have a larger error. In addition, the ratio between the maximum and minimum flows shall not be larger than 20 to assure of precise measurements.

● Dimension Figure



High Accuracy, Good Repeatability, Responsive Easy To Install And Maintain

Widely used in petroleum, chemical, metallurgy, water supply, and paper industries, it is an ideal instrument for flow measurement and energy saving.



● Overall Dimensions of Integrated Flowmeters and Split Flowmeters.

mm

Caliber (DN)	Pressure resistance	L	D	D ₀	H	h	n-Φ	kg
15	4.0	200	95	65	232	106	4-Φ14	5
20		200	105	75	240	110	4-Φ14	5.5
25		200	115	85	245	115	4-Φ14	6.5
32		200	140	100	265	122	4-Φ18	8
40		200	150	110	270	127	4-Φ18	9.5
50		200	165	125	280	140	4-Φ18	11
65		200	185	145	285	148	8-Φ18	14
80		200	200	160	290	154	8-Φ18	17
100	1.6	250	220	180	300	163	8-Φ18	20
125		250	250	210	330	175	8-Φ18	27
150		300	285	240	340	220	8-Φ22	32
200		350	340	295	350	220	12-Φ22	44
250		450	405	355	370	240	12-Φ26	84
300		500	460	410	415	285	12-Φ26	89

5. Model Selection And Instruction

LD-GZBQH- / / / / / / / / / / /

A B C D E F G H I J K L

A: DN Code

Code	DN	Code	DN	Code	DN
003	3	065	65	400	400
006	6	080	80	450	450
010	10	100	100	500	500
015	15	125	125	600	600
020	20	150	150	700	700
025	25	200	200	800	800
032	32	250	250	900	900
040	40	300	300	1000	1000
050	50	350	350		

B: Flow Meter Construction

Y: Integrated type (circular convertor) F: Split type (square type)

C: Nominal Pressure

P4:PN $\leq$ 4.0MPa(DN15-80) P2:PN $\leq$ 1.6MPa(DN100-300)

D: Power Supply

AC: 220VAC (90–245V 50/60Hz) DC: 24VDC(20–36V)

E: Output Signal

IfS: 4–20mA, 1 KHZ, RS485 Basic configuration

F: Explosion-Proof Request

N: No explosion-proof

G: Medium Temperature

T1 $\leq$ 65℃ T2 $\leq$ 120℃



H: Liner Material

NE: Polychloroprene($\leq 65^{\circ}\text{C}$, DN50~300)

PTFE: Polytetrafluoroethylene($\leq 120^{\circ}\text{C}$, DN15~300)

I: Material of Electrode

316: Stainless Steel

J: Full-Scale Range of Flow Rate(Refer to the Flow Selection Table)

K:Accuracy: $\pm 1.0\%$;

L: Length of Signal Line (m) (Only Split Type)

Example:

A B C D E F G H I J K
LD-GBQH-050 / Y / P4 / AC / IF / N / T2 / PTFE / 316L / 50m³/h / 1.0

Explanation:

LD-GBQH: Flange Type Flow Meter

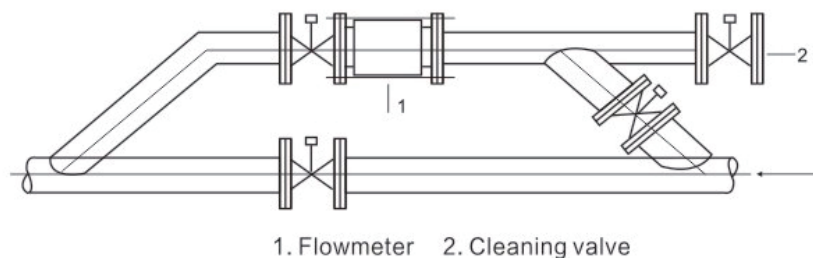
A: Dn50 B: Integrated Type C: PN $\leq 4.0\text{MPa}$ D: Powered by AC220

E: 4-20MA/1KHz Basic Configuration F: No Explosion-proof G: $\leq 120^{\circ}\text{C}$ H: PTFE Liner

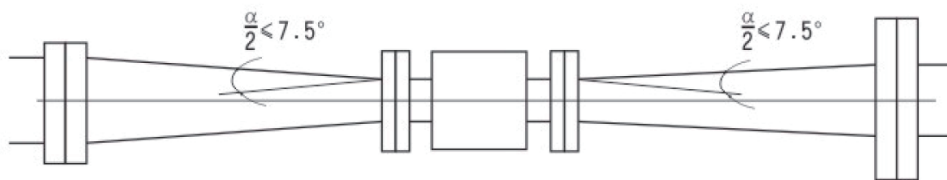
I: 316LElectrode J: 50mm³/h Max. Flow K: ± 1.0 Accuracy

6. Precautions For Sensor Installation

- The installation location and position of the sensor can be selected as required, and the sensor can be installed horizontally, obliquely or vertically. However, the axis of the two electrodes should be roughly horizontal. Regardless of the installation form, it is required to ensure that the measuring tube is full of the medium under measurement. Phenomena such as the tube not full of the medium under measurement and tube with bubbles are not allowed.
- Flow direction: the direction indicated by narrow on the sensor is the positive direction of flow.
- Due to the limited distance between the flange of the sensor and its shell, the connecting bolts shall pass through the side of tube. Therefore, enough space is required at the flange of the tube connected with the sensor.
- In case of strong vibration in the pipeline system, the pipes on both sides of the sensor should be reinforced.
- If the medium under measurement is very dirty liquid or liquid that is easy to form scale on the tube, for easy cleaning, it is suggested to install the sensor on the by - pass pipe. (as shown in the figure)



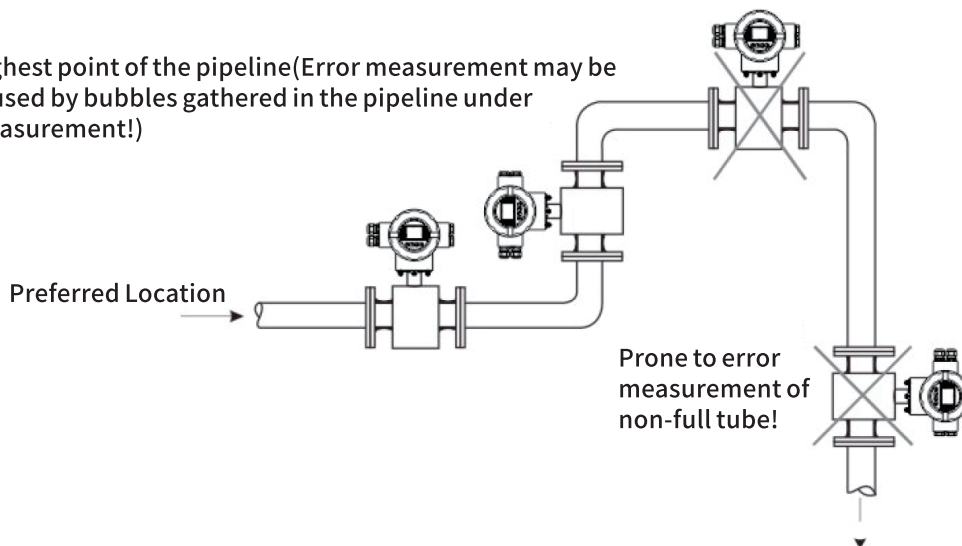
- Ferromagnetic material should not be close to the sensor, and the sensor should be kept away from strong electromagnetic field. Otherwise, the magnetic field or signal voltage of the sensor will be affected.
- To check the zero point, the sensor should be filled with medium and the flow rate in it should be zero, which can be achieved by closing the stop valves installed upstream and downstream of the sensor. These valves should not be installed in ranges smaller than $5 \times \text{DN}$ upstream and $2 \times \text{DN}$ downstream of the sensor. In order to avoid formation of vortex flow after installation, it is necessary to carefully check the concentric installation of the seal and the grounding ring.
- In order to avoid interference, the signal line and the power supply or excitation current line should not be laid in the same steel tube. When running in parallel, the wires should not get too close to each other. Certain distance shall be kept.
- The length of straight pipe section at the upstream side of the sensor shall not be less than 5DN and that at the downstream side shall not be less than 2DN . DN is the diameter of the sensor. If this requirement cannot be met on site, a flow straightener shall be installed on the upstream side to eliminate the vortices in the flow, and improve the flow field distribution, as well as the measurement accuracy and stability. If the diameter of the sensor is inconsistent with the diameter of the connected tube, a special - shaped pipe must be installed. To avoid affecting the measurement accuracy, the sensor shall be installed as shown in the figure (see figure).



Some Suggestions on the Correct Installation

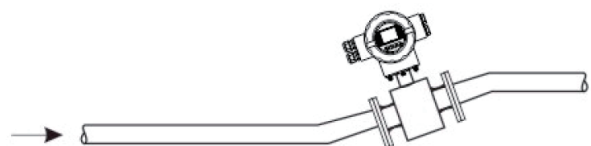
In order to avoid the measurement error caused by the accumulation of air in the pipeline and the damage of the sensor lining caused by the formation of negative pressure in the pipeline, please pay attention to the following issues:

Highest point of the pipeline(Error measurement may be caused by bubbles gathered in the pipeline under measurement!)



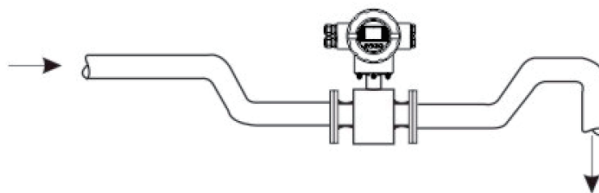
● Horizontal Pipeline

If it is not possible to install the sensor in a slightly rising pipe section, sufficient flow rate should be ensured to prevent air, gas or stream from accumulating in the upper part of the pipe.



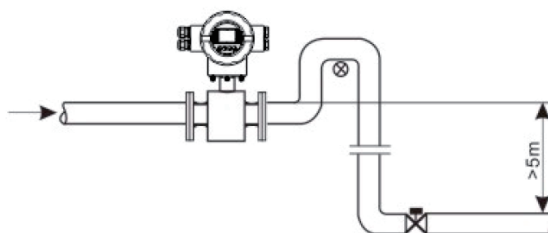
● **Open Injection or Discharge**

Install the instrument in lower section of the pipe.



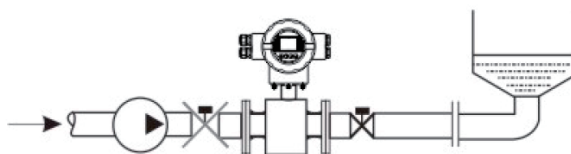
● **Lower Section of the Descending Pipe is Longer Than 5 Meters**

Install exhaust valve (vacuum) downstream of the flowmeters.



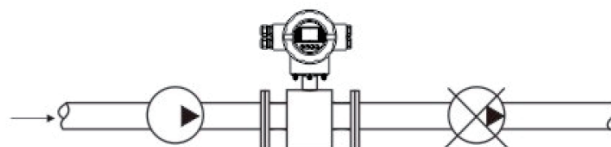
● **Long Piping System**

The control valve and stop valve are usually installed downstream of the flowmeter.



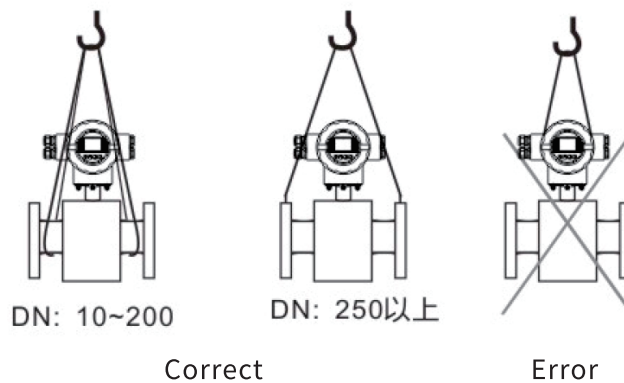
● **Pump**

Never install the flowmeter on the suction end of the pump (vacuum!)



● **Hoisting**

Do not use the following wrong methods when installing and hoisting the equipment.



7. Converter Installation and Maintenance

Converter Installation

- The instrument adopts on - site integrated installation (integrated) and split wall mounting or tube - holding mounting (split - type).
- Avoid collision and strong AC magnetic field during installation.
- The length of the connecting wire between the intelligent converter of the split flowmeter and the sensor is generally 20–30 meters, and 100 meters at most. For wiring, please strictly follow the wiring diagram.
- This instrument has been calibrated and set by professional technicians in water flow standard calibration devices. No resetting is required. Wiring and energization can be performed directly.

Precautions For Converter Installation

- Ensure ventilation and dryness, and avoid excessive temperature and humidity, and corrosive gas.
- The instruments installed outdoors shall be provided with sunshade and rainproof measures. Avoid direct sunlight.
- Avoid lightning strikes.

Converter Maintenance

- If any exception of the converter is encountered, first check if the external structure is damaged, whether the cable connection is intact, and whether the power grid voltage is normal.
- After confirming that the converter is faulty, open the instrument cover, check if the connector is loose or shifted, whether the components are heated or burnt, and if possible, use a converter of the same flow and model to test whether the converter is faulty.

8. Maintenance of Electromagnetic Flowmeter in Use

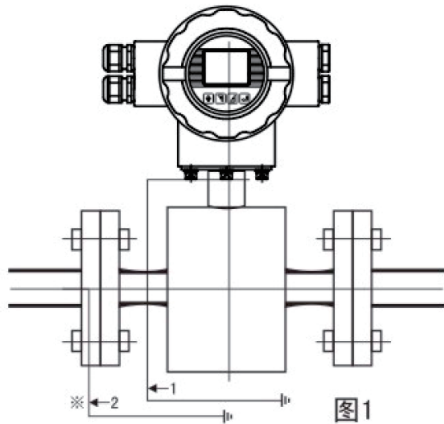
- Check the flowmeter regularly for water immersion, moisture and corrosion.
- Clean the electrode and measuring tube regularly. Do not damage the electrode and lining when cleaning.
- Regularly check the connecting cable for aging and good contact.

Instrument Grounding

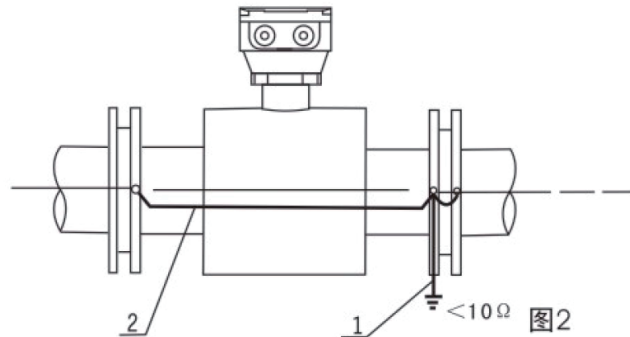
- Whether the sensor shell is grounded or not is directly related to the accuracy and stability of measurement. The grounding wire must not transmit any interference voltage. Therefore, other electrical equipment should not be connected to the same grounding wire.
- When the instrument leaves the factory, the output part of the converter has been provided with a ground wire. It is only required to ground as required. As the sensor is connected to the metal pipe, medium in the metal pipe has good electrical connection with the ground. Therefore, additional ground wire is no longer required by the sensor. If there is a higher requirement for grounding, or there is strong electromagnetic interference in the environment, the ground wire can also be set independently. The ground rod shall be buried in damp earth greater than 1 meter deep. The ground wire should be multi - strand copper wire with a cross - sectional area of not less than 4mm². (see the figure).



Instrument Grounding Diagram



- 1. Converter Ground Wire
- 2. Sensor Ground Wire
- ※ Grounding Copper Wire



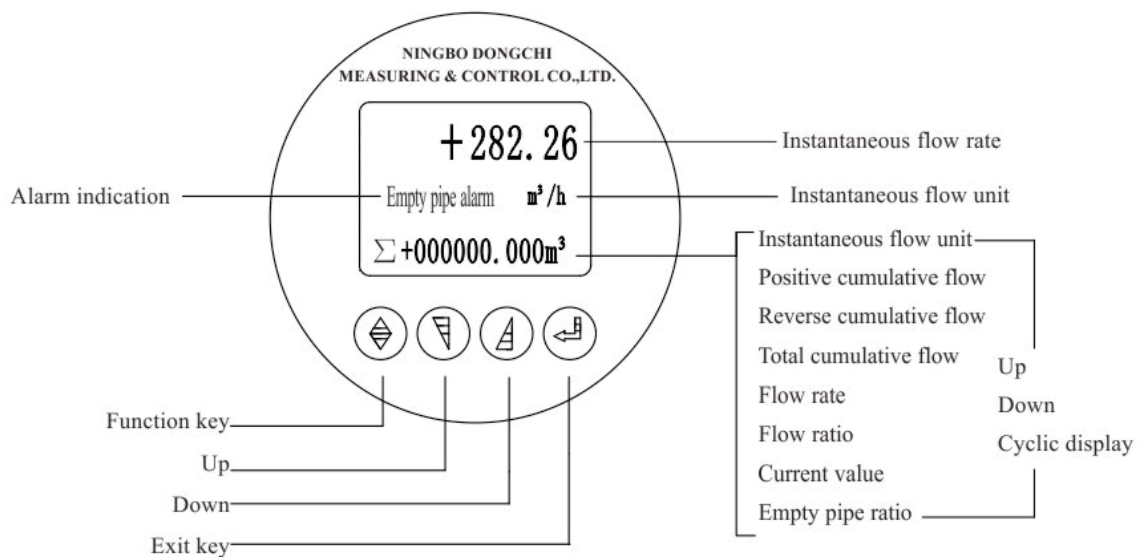
- 1. Grounding Device Wire
(Installed in case of large external interference)
- 2. Instrument Grounding Wire

Note 1: installation of the sensor on metal pipe: the inner wall of the metal pipe has no insulation coating, and the metal pipe should be grounded according to the figure above. (Figure 1)

Note 2: Installation of sensor on plastic pipe or pipe with insulating coating or paint: both ends of sensor shall be grounded, so that the medium under measurement flowing in the pipeline is short circuit with the earth and has zero potential. Otherwise the electromagnetic flowmeter cannot work normally. (Figure 2)

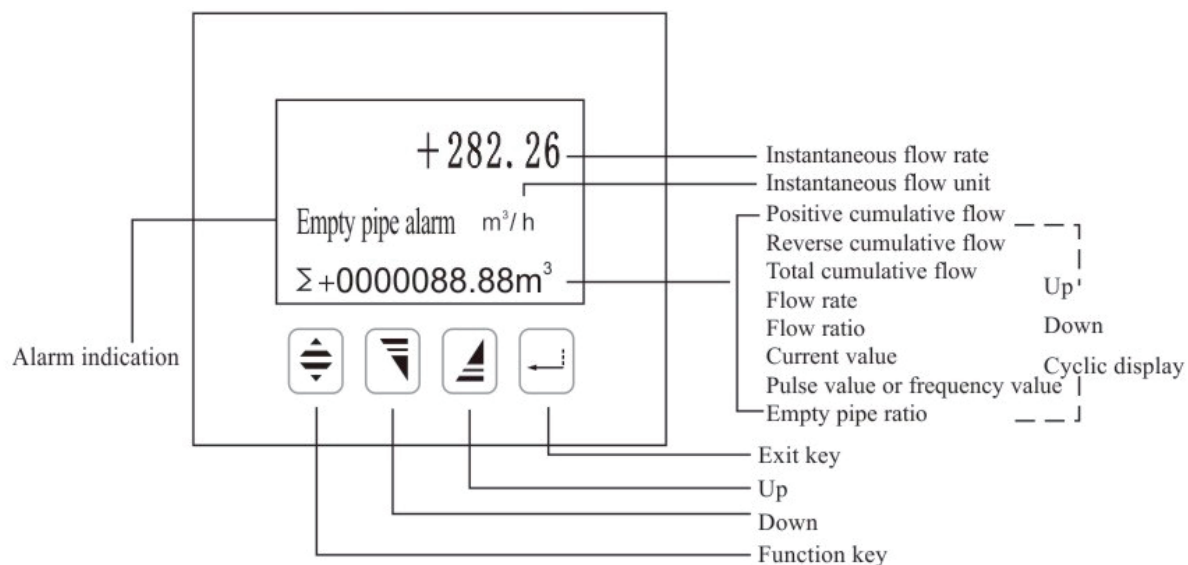
9. Definition and Display of Keyboard on the Integrated and Split Converter

Definition and display of keyboard on the integrated



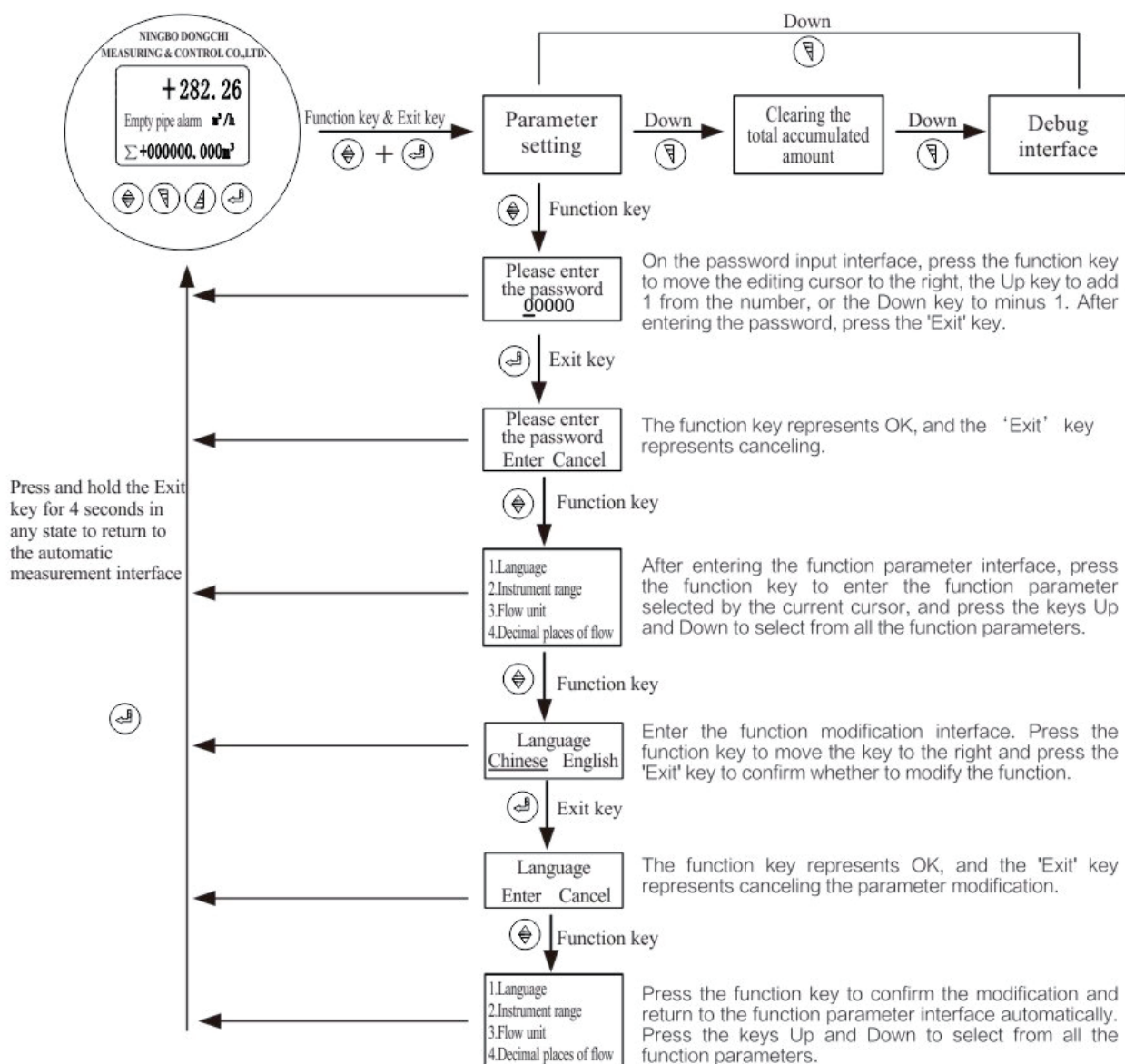
After being powered on, the instrument will enter the automatic measurement state to perform various measurement functions and display the corresponding measurement data. The instrument parameters can be set and displayed by operating the four panel buttons.

Definition and Display of Keyboard on the Split Converter



After being powered on, the instrument will enter the automatic measurement state to perform various measurement functions and display the corresponding measurement data. The instrument parameters can be set and displayed by operating the four panel buttons.

10. Key Function



11. Password

There are three levels of passwords, of which level 1 password can only be used to view the specific parameters of the current flowmeter, and cannot modify such parameters, and level 2 password can be used to modify the specific parameter settings and function parameters of the flowmeter. The factory values of level 1 password and level 2 password are "00000" and "90009" respectively. If you need level 3 engineer password, please contact the after - sales service department!

12. Quick Clearing The Total Accumulated Amount

On the automatic measurement page, press the function key + Exit key to enter the parameter setting page, press the key Down to reach the page for clearing the total accumulated amount and press the function key to enter the page. After entering the password, the page will prompt to confirm or cancel. Press the function key to confirm clearing of the total accumulated amount. If you need the password to clear the total accumulated amount, please contact after - sales.

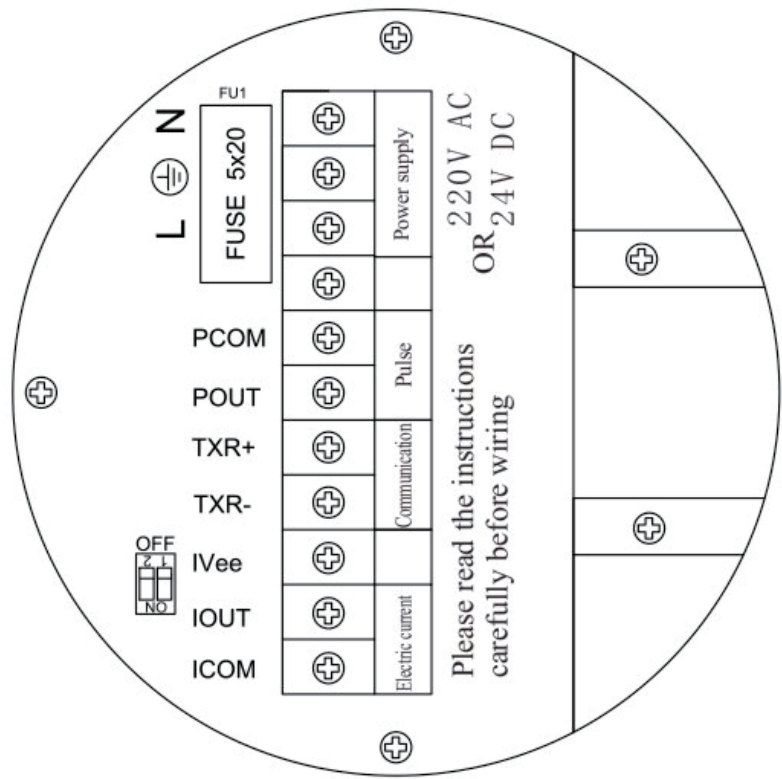
13. Functional Parameters

List of integrated and split debugging function parameters

Parameter Number	Parameter Literal	Setting mode	Parameter range
1	Language	Select	Chinese 、 English
2	Meter range	Reset	0-00000
3	Flow unit	Select	m ³ /s m ³ /m m ³ /h L/s L/m L/h AF/h AF/m BBL/h BBL/m GPM t/s t/m t/h kg/s kg/m kg/h
4	Decimal flow	Select	Automatic and manual; when setting manually, the instantaneous flow can be set to 0-3 decimal places
5	Flow accumulation unit	Select	0.001m ³ 、0.01m ³ 、0.1m ³ 、1m ³ 、0.001L、110 ¹ m ³ 、110 ² m ³ 、110 ³ m ³ 、0.01L、0.1L、1L、1t、1kg、1GAL、1AF、1BBL、
6	Flow zero correction	Reset	0~ ± 9999
7	Automatic zero correction	Select	Allow、Forbid
8	Pulse output type	Select	Pulse 、 Frequency
9	Pulse unit equivalent	Reset	The unit is L, which can be set between 0.001L~10000.000L
10	Pulse width setting	Select	Auto or manual mode optional, manual mode settable
11	Frequency output range	Reset	0~10000Hz
12	Mailing address setting	Reset	Optional range 01-99 address. 0 position reserved
13	Communication baud rate	Select	300.600.1200.2400.4800.9600.19200.38400
14	Communication verification place	Select	No validation, odd validation, even validation
15	Damping time	Set up	0 ~ 99 seconds
16	Fluid density	Reset	Set up
17	Small signal cutting	Select	Allow, prohibit
18	Small signal cutting point	Reset	0-99.99%
19	Measurement direction selection	Select	Forward, reverse
20	Reverse measurement allowed	Select	Allow, prohibit
21	Reverse output allowed	Select	Allow, prohibit
22	Empty pipe alarm allowed	Select	Allow, prohibit
23	Empty pipe alarm threshold value	Reset	0-99%
24	Excitation alarm allowed	Select	Allow, prohibit
25	Password to clear the total accumulated amount	Reset	Enter the original password, which can be modified
26	Debug password	Reset	Enter the original password, which can be modified
27	Forward total preset	Reset	0~9999999999
28	Reverse total preset	Reset	0~9999999999
29	Current zero trimming	Reset	± 0.00mA
30	Current full scale trimming	Reset	± 0.00mA
31	Current output test	Reset	4~20mA
32	Frequency output test	Reset	0~99999Hz
33	Pulse output test	Reset	0.0-999.9ms
34	Flow rate test	Reset	0~99999mm/s
35	Factory data reset	Password	90009

14. Wiring Diagrams and Signal Definitions for Integrated and Split-Type Converters

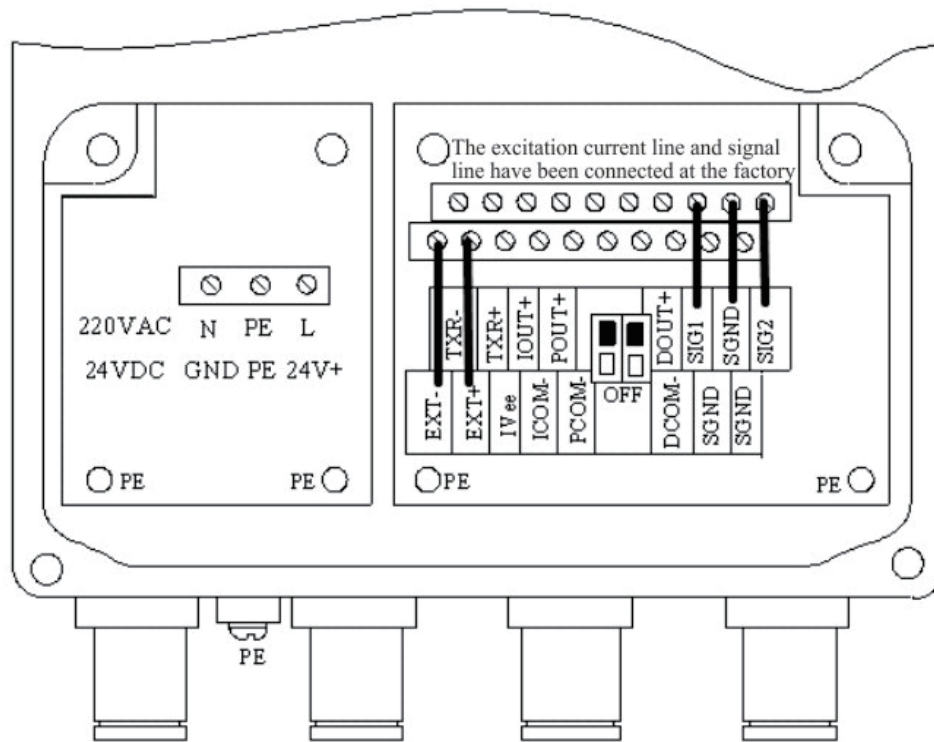
● Wiring of Integrated Converter(Circular Converter)



● Terminal Instructions

IVee	Current output power	]————— Current Output
IOU+	Current output (+)	
ICOM-	Current output ground (-)	
POU+	Frequency (pulse) output (+)	]————— Frequency or Pulse Output
PCOM-	Frequency (pulse) output ground (-)	
TXR +	Communication input (RS485+)	]————— Communication Interface
TXR -	Communication input (RS485-)	

● Wiring of Split Converter(Square Convertor)



● Terminal Instructions

SIG 1	Signal 1	}	Connect the sensor
SGND	Signal ground		
SIG 2	Signal 2		
EXT +	Excitation current +	}	
EXT -	Excitation current -		
IVee	Current output power	}	Current output
IOUT+	Current output (+)		
ICOM-	Current output ground (-)		
POUT+	Frequency (pulse) output (+)	}	Frequency or pulse output
PCOM-	Frequency (pulse) output ground (-)		
TXR -	Communication input (RS485+)	}	Communication Interface
TXR+	Communication input (RS485-)		

15. Frequency Pulse Output Interface and Current Output Interface

Frequency output interface

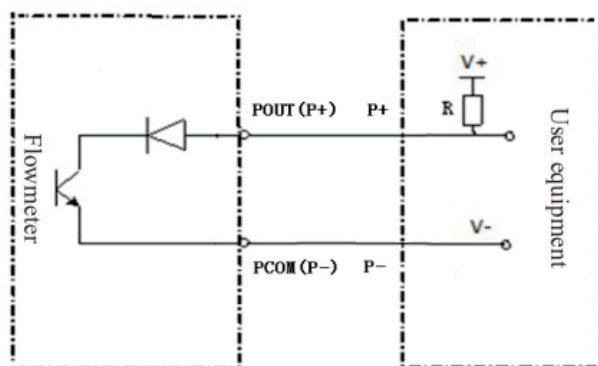
Frequency output and pulse output share a set of terminals POUT (P+) and PCOM (P-), and frequency output or pulse output can be selected from the menu. Frequency / pulse output supports three output modes.

Output mode 1: OC gate passive output, user side connected with pull-up resistor.

The two on-board dip switches (red dip switches in the wiring chamber) on the split-type converter are turned outward to QFF position and the two on-board dip switches on the integrated wiring board are turned downward (OFF position).

POUT (P+) output frequency / pulse signal.

External power supply V+ can be 5V/12V/24V, and the range of pull-up resistance R is 2K ~ 10K.



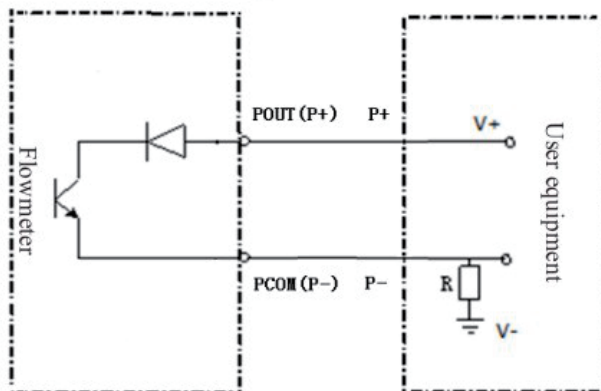
Output mode 2: OC gate passive output, user side connected with pull-down resistor.

The two on-board dip switches (red dip switches in the wiring chamber) on the split-type converter are turned outward (to OFF position) and the two on-board dip switches on the integrated wiring board are turned downward (OFF position).

PCOM (P-) output frequency / pulse signal.

POUT (P+) is directly connected to external power supply V+.

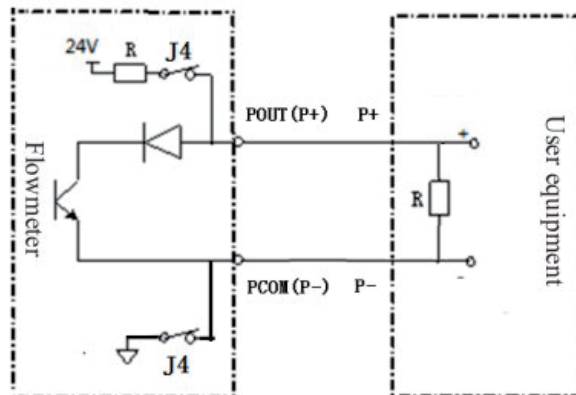
This mode is common in the combination system of flowmeter and PLC.



Output mode: level mode active output, which can directly drive the load.

The two on-board dip switches (red dip switches in the wiring chamber) on the split-type converter are turned inward (to ON position) and the two on-board dip switches on the integrated wiring board are turned upward (ON position).

POUT (P+) output frequency / pulse signal.



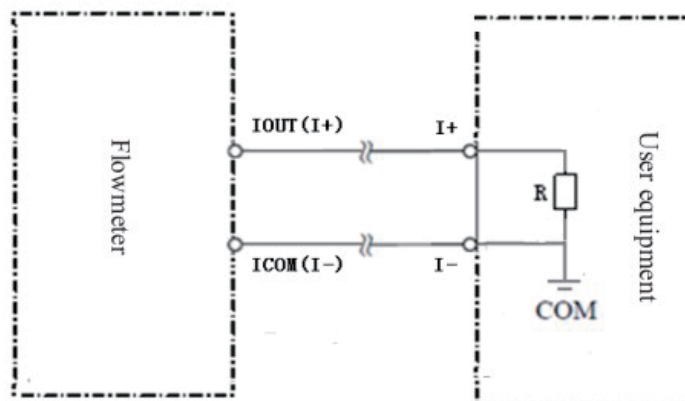
Current Output Interface

The current output is designed with high-precision large scale integrated chip, with no need for zero and full scale calibration. The output is stable and reliable, with good interoperability and temperature stability.

The current output consists of three terminals, i.e. IOUT (I+), ICOM (I-) and IVee, and supports two current output modes: two-wire active current output and two-wire passive current output.

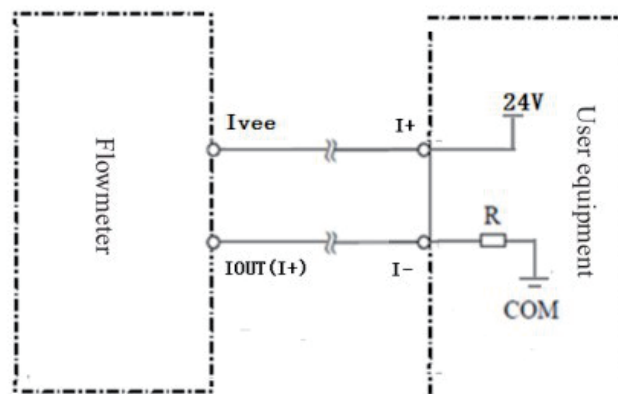
Output mode 1: two-wire active current output

Terminals: IOUT(I+) and ICOM (I-).



Output 2: two-wire passive current output.

Terminals: IOUT(I+) and IVec.



16. Definition of Flowmeter Common Register Address

Register address	PLC memory address	unit	Number of bytes	Attributes	Format	Register definition
90	40091		4	RO	SF	Forward cumulative flow -floating point format
92	40093		4	RO	SF	Forward cumulative flow -floating point format
94	40095		4	RO	SF	Total cumulative flow -floating point format
96	40097		4	RO	DW	Clear cumulative flow
98	40099	Reference register 105	4	RO	SF	Flow-floating point format
100	40101	m / s	4	RO	SF	Flow rate -floating point format
102	40103	%	4	RO	SF	Flow percentage -floating point format
104	40105	%	2	RO	W	Empty pipe percentage
105	40106		2	RO	W	Flow unit
106	40107		2	RO	W	Empty pipe alarm
107	40108		2	RO	W	Excitation alarm

17. Example of Communication Protocol

When the electromagnetic flowmeter detects any error except CRC code error, it must send back information to the host. The highest position of function code is 1, that is, the function code returned to the host from the slave is the function code sent by the host plus 128.

Get Forward Cumulant (Floating Point Data Format)

Register address: 90 (0x5a) corresponds to PLC memory address 40091

The host sends out: 01 03 00 5A 00 02 E4 18

Detailed description:

Data field	Number of bytes	Send Content	Note
Slave address	1	01	Slave address 01
Function code	1	03	Read command
Register start address	2	00 5A	Forward cumulative address in floating point format is 0x005a
Register length	2	00 02	The cumulant is 32 bits in length, two registers
CRC code	2	E4 18	CRC check code, high order first

Slave respond: 01 03 04 3F C1 97 4E 49 DF

Detailed description:

Data field	Number of bytes	Send Content	Note
Slave address	1	01	Slave address 01
Function code	1	03	Read command
Number of bytes returned	4	04	Two registers with 4 bytes in total
Register data 1	2	3F C1	Forward cumulant in floating point format high 16bits of Flow Register, high byte first
Register data 2	2	97 4E	Forward cumulant in floating point format low 16bits of Flow Register, high byte first
CRC code	2	49 DF	CRC check code, high order first

Cumulant 1.51243 m^3 (floating point format 3F C1 97 4E bytes no. 1 to no. 4)

Get Forward Cumulant (Floating Point Data Format)

Register address: 98 (0x62) corresponds to PLC memory address 40099

The host sends out: 01 03 00 62 00 02 65 D5

Detailed description:

Data field	Number of bytes	Send Content	Note
Slave address	1	01	Slave address 01
Function code	1	03	Read command
Register start address	2	00 62	The traffic address is 0x0062
Register length	2	00 02	The cumulant is 32 bits in length, two registers
CRC code	2	65 D5	CRC check code, high order first

Slave respond: 01 03 04 42 0C 00 00 2E 48

Detailed description:

Data field	Number of bytes	Send Content	Note
Slave address	1	01	Slave address 01
Function code	1	03	Read command
Number of bytes returned	4	04	Two registers with 4 bytes in total
Register data 1	2	42 0C	High 16bits of Flow Register, high byte first
Register data 2	2	00 00	Low 16bits of Flow Register, high byte first
CRC code	2	2E 48	CRC check code, high order first

The flow is 35 bits in length (floating point format 42 0C 00 00 bytes no. 1 to no. 4)

Liquid Turbine Flowmeter

Overview

LWY-GZBQH Series Turbine Flowmeter has the features of simple structure, light weight, high precision, good repeatability, sensitive reaction, and convenient installation and maintenance, etc.

The product is typically applicable to water, diesel oil, methanol and other non-aggressive liquids without impurities. Matched with display instrument with special functions, the product has the extra function of quantitative control and over-alarm, and is an ideal meter for flow measurement and energy saving.



Features

- The sensor is the thrust type of the hard alloy bearing, which not only ensures the precision and the wear resistance, but also has the characteristics of simple structure, firm and convenient disassembly and assembly.
- Multiple transmitter modes:
 - N-type turbine flow sensor 24V power supply without display, using three-wire pulse output.
 - A-type turbine flow sensor 24V power supply without display, output 4~20mA current.
 - B-type field display, battery power supply, and two-wire pulse output (passive), if you need to use RS485 communication output (need to turn on the switch)
 - C-type field display 24V power supply uses two-wire pulse output (passive) and two-wire 4~20mA current output, RS485 communication output;
- Intelligent Processing: Multipoint non-line correction of instrument coefficient to ensure high precision of full range.
- The meter coefficient and accumulative flow value are kept even when power off, with no loss for ten years.

Operating Principle

The fluid flows through the sensor housing, As the impeller blade and flow have a certain angle, the impact force of the fluid makes the blade have a moment of rotation and rotate after overcoming the friction torque and flow resistance. When the rotation speed tends to be stable after the balance of moment, it would be in direct proportion to the velocity of the flow under certain conditions.

Because of the magnetic conductivity of the blade, it is in the magnetic field of the signal detector (composed of permanent magnetic steel and coils). The rotating blade cuts the magnetic lines, and periodically changes the magnetic flux of the coil, so that the electric pulse signals are induced at both ends of the coil. The signal is amplified and shaped by the amplifier to form a continuous rectangular pulse wave with a certain range, which can be transmitted far to the display instrument, to display the instantaneous flow or amount of the fluid. In a certain flow range, the pulse frequency f is proportional to the fluid (instantaneous flow rate Q) flowing through the sensor, and the flow calculation formula is as follows:

$$Q=3600 \times \frac{F}{K}$$

f - Pulse Frequency (Hz)

k - The meter coefficient (pulse/ m^3) of the sensor is given by the checklist

Q - Instantaneous flow(m^3/h)

Technical Parameters

Measuring Medium		liquid (no corrosion to 304 or 316 stainless steel, 2Cr13 steel or nickel and diamond spar Al ₂ O ₃)	
Caliber (DN) mm	Threaded Connection	4、6、10、15、20、25、32、40	
	Flange Connection	(15), (25), (32), (40), 50, 65, 80, 100, 125, 150, 200 (DN15 - 40 are commonly threaded connection, The flange connection needs to be customized.)	
Accuracy Grade		Grade 1 and grade 0.5(The specific flow rate can reach 0.2 level)	
Repeatability		±0.2% of indicated value	
Medium Temperature		Normal Temperature Type: -20℃~+120℃ High Temperature Type.: -20℃~+150℃	
Applicable Environment		Temperature: -20℃ to +55℃. Humidity: 5 - 95% RH.	
Protection Level		IP65, IP67	
Explosion-Proof Grade		Exd II Bt6	
Power Supply		12VDC, 24VDC or battery powered (3.2V 10AH)	
Output Signal	Pulse Voltage	High level ≥ 8V, Low level ≤ 0.8V	Transmission Distance ≤ 1000 meters
	Standard Current	4~20mA DC	
	Output Signal	Rs485 output	
Straight Pipe Section Requirements		Flowmeter upstream ≥20DN Downstream ≥5DN	

Flow Range and Nominal Pressure

Caliber(DN) mm	Normal Flow Range m ³ /h	Extended Flow Range m ³ /h	Conventional Nominal Pressure Mpa	High Pressure Type Pressure Resistance Mpa
4	0.04-0.25	0.04-0.4	6.3	25
6	0.1-0.6	0.06-0.6	6.3	25
10	0.2-1.2	0.15-1.5	6.3	25
15	0.6-6	0.4-8	6.3 (Flange4.0)	25
20	0.8-8	0.45-9	6.3 (Flange4.0)	25
25	1-10	0.5-10	6.3 (Flange4.0)	25
32	1.5-15	0.75-15	6.3 (Flange4.0)	25
40	2-20	1-20	6.3 (Flange4.0)	25
50	4-40	2-40	2.5	25
65	7-70	4-70	2.5	25
80	10-100	5-100	2.5	25
100	20-200	10-200	2.5	25
125	25-250	13-250	2.5	25
150	30-300	15-300	1.6	16
200	80-800	40-800	1.6	16

Flowmeter Classification

● LWY-GZBQH-□N Basic Turbine Flowmeter

12-24VDC power supply, three-wire pulse output, high level $\geq 8V$, low level $\leq 0.8V$; transmission distance ≤ 1000 meters. It can be used with any pulse-type input totalizer display or control secondary instrument.

● LWY-GZBQH-□A Basic Turbine Flowmeter

Powered by 24V without display and can output 4~20mA current.

● LWY-GZBQH-□B Intelligent On-Site Display Turbine Flowmeter (battery-powered type)

This flow meter is a new intelligent instrument that adopts turbine flow sensor using advanced ultra-low power consumption single-chip microcomputer technology, and display accumulation integration. It is powered by battery and has a double-row LCD on-site display of instantaneous flow and accumulated flow. It has obvious advantages such as compact structure, intuitive and clear readings, high reliability, no interference from external power supply, lightning resistance, and low cost.

Power Supply: 3.6V lithium battery (continuous operation for more than three years)

Display Mode: LCD display instantaneous flow, cumulative flow and parameters.

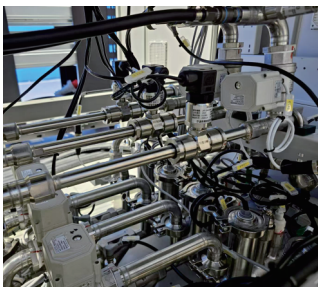
The accumulated total amount and instrument coefficient will not be lost for 10 years after power failure. There is a two-wire pulse output (passive) if RS485 communication output is required (the switch needs to be turned on).

Note: When ordering, you can request an external button for one-click clearing, and add "-Z" at the end of the model number.

● LWY-GZBQH-□C Intelligent On-Site Display Turbine Flowmeter With Various Output Modes (on-site DC24V power supply type)

This turbine flow transmitter is developed based on the LWY-□B and its power supply is changed to 24VDC. It has a 4-20mA two-wire current output module and RS485 communication output and two-wire pulse output (passive). It has both on-site display and remote Transfer function.

Note: When ordering, you can request an external button for one-click clearing, and add "-Z" at the end of the model number.



Ordering

Item Code								Instructions
LWY-GZBQH	☐	☐	☐	☐	☐	☐	☐	
Caliber DN	4							4mm, General turbine flow range 0.04~0.25m³/h
	6							6mm, General turbine flow range 0.1~0.6m³/h, wide range turbine 0.06~0.6m³/h
	10							10mm, General turbine flow range 0.2~1.2m³/h, wide range turbine 0.15~1.5m³/h
	15							15mm, General turbine flow range 0.6~6m³/h, wide range turbine 0.4~8m³/h
	20							20mm, General turbine flow range 0.8~8m³/h, wide range turbine 0.45~9m³/h
	25							25mm, General turbine flow range 1~10m³/h, wide range turbine 0.5~10m³/h
	32							32mm, General turbine flow range 1.5~15m³/h, wide range turbine 0.75~15m³/h
	40							40mm, General turbine flow range 2~20m³/h, wide range turbine 1~20m³/h
	50							50mm, General turbine flow range 4~40m³/h, wide range turbine 2~40m³/h
	65							65mm, General turbine flow range 7~70m³/h, wide range turbine 4~70m³/h
	80							80mm, General turbine flow range 10~100m³/h, wide range turbine 5~100m³/h
	100							100mm, General turbine flow range 20~200m³/h, wide range turbine 10~200m³/h
	125							125mm, General turbine flow range 25~250m³/h, wide range turbine 13~250m³/h
	150							150mm, General turbine flow range 30~300m³/h, wide range turbine 15~300m³/h
	200							200mm, General turbine flow range 80~800m³/h, wide range turbine 40~800m³/h
Type	N							Basic type, 12 - 24VDC power supply, three - wire pulse output
	A							4~20mA two - wire current output, remote transmission type
	B							Battery - powered field display, no current output
	C							Filed display with 4~20mA two - wire current output type
Accuracy Grade		0.5						Accuracy of grade 0.5
		1.0						Accuracy of grade 1
Turbine Type			W					Wide range turbine (accuracy can only be grade 1.0)
			S					Standard turbine
Body Material			S					304 stainless steel
			L					316 stainless steel (nickel plated impeller)
Explosion Proof				N				No explosion - proof
				E				Explosion - proof (Exd II BT6)
Pressure				N				General (refer to page 2 measurement range and nominal pressure)
				H				High pressure (refer to page 2 measurement range and nominal pressure)
Special Function Remarks					-Z	When ordering, you can request an external button for one - click cleaning function.		
High Temperature Type					-T	-20°C~+150°C		

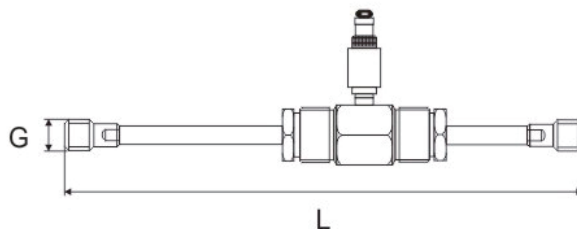
Notes:

- DN4-10 are all threaded connection, and the front and rear straight tube section and filter are equipped as the standard configuration.
- DN15-40 are commonly threaded connection, but DN15-40 can also choose flange connection, add "FL" which represents flange connections after the diameter when ordering.
- DN 50-200 are all flange connection.

Dimension Diagrams



① LWY-4~10 sensor
dimension diagrams



① LWY-4~10



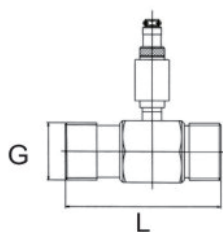
② LWY-15~40 sensor
dimension diagrams



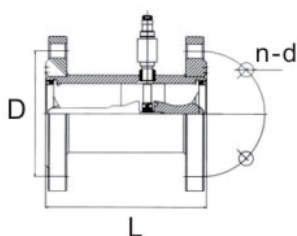
③ LWY-15~300 sensor
dimension diagrams



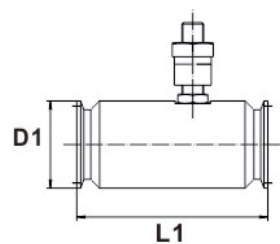
④ LWY-10~100 sensor
dimension diagrams



② LWY-15~40



③ LWY-15~300



④ LWY-10~100

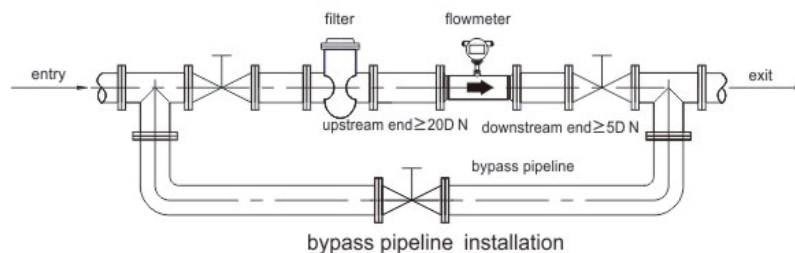
Dimensions (mm)

Caliber(DN)	L (mm)	L1 (mm)	G	D (mm)	D1 (mm)	d (mm)	h (Number of holes)
4	225	—	G1/2	—	—	—	—
6	225	—	G1/2	—	—	—	—
10	345	50	G1/2	—	Φ50.5	—	—
15	75	75	G1	Φ65	Φ50.5	Φ14	4
20	85	85	G1	Φ75	Φ50.5	Φ14	4
25	100	100	G5/4	Φ85	Φ50.5	Φ14	4
32	120	120	G1-1/2	Φ100	Φ50.5	Φ14	4
40	140	140	G2	Φ110	Φ64	Φ18	4
50	150	150	—	Φ125	Φ64(77)	Φ18	4
65	175	175	—	Φ145	Φ91	Φ18	4
80	200	200	—	Φ160	Φ106	Φ18	8
100	220	220	—	Φ180	Φ119	Φ18	8
125	250	—	—	Φ210	—	Φ18	8
150	300	—	—	Φ240	—	Φ22	8
200	360	—	—	Φ295	—	Φ22	12
250	400	—	—	Φ355	—	Φ26	12
300	500	—	—	Φ400	—	Φ26	12

Installation and Usage

● Flowmeter Installation

1. The sensor can be installed horizontally or vertically. When installed vertically, the fluid direction must be upward. The liquid should fill the pipe fully and there should be no air bubbles. When installing, the direction of liquid flow should be consistent with the direction of the arrow indicating the flow direction on the sensor housing. The length of straight pipe section at the upstream end of the sensor should reach at least 20 times of the nominal diameter, and the length of straight pipe section at the downstream end of the sensor should reach no less than 5 times of the nominal diameter. The inner wall should be smooth and clean, with no defects such as dents, dirt, and peeling. The axis of the sensor pipe should be aligned with the axis of the connecting pipe, and O - Ring used for connection and sealing must not protrude into the inner side of the pipe.
2. The sensor should be kept away from external electric fields and magnetic fields, and effective shielding measures should be taken to avoid external interference.
3. When the sensor is installed outdoors, please take measure of waterproof for the amplifier and plug.
4. Keep the flow clean and free of impurities such as fibers and particles. When the fluid contains impurities, a filter should be installed. The mesh size of the filter depends on the flow rate of impurities, generally 20 to 60 mesh. When free gas is mixed in the fluid, an air eliminator should be installed. The connection between the filter or air eliminator and the flow meter must be through a straight pipe section.
5. In order to not affect the normal transportation of fluid, it is recommended to install a bypass pipeline and related stop valves as shown below to facilitate the disassembly, maintenance and regular calibration of the flow meter. The bypass pipe valve must be closed during normal use.

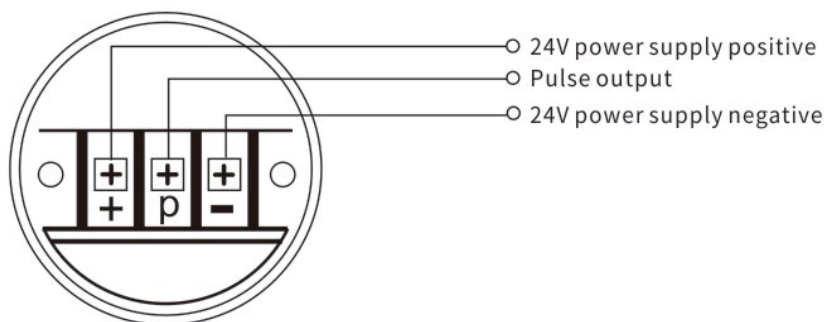


● Usage and Maintenance

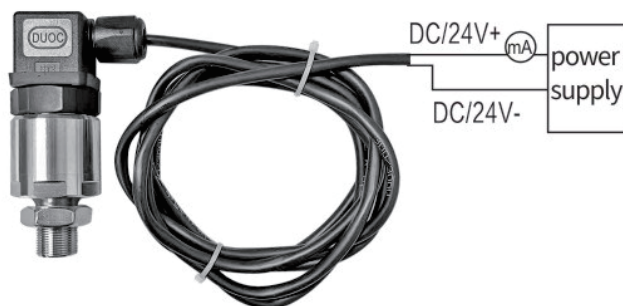
1. Users should fully understand the corrosion situation of the measured medium and strictly prevent the sensor from being corroded.
2. When starting to use, the sensor should be slowly filled with liquid before opening the exit valve. It is strictly forbidden for the sensor to be impacted by high - speed fluid when it is in a liquid - free state, otherwise the sensor core will be damaged.
3. The maintenance cycle of the sensor is generally half a year. During maintenance and cleaning, please be careful not to damage the parts in the measuring chamber, especially the impeller. When assembling, please pay attention to the positional relationship between the guide parts and the impeller.
4. When the sensor is not used for a long time, it should be removed from the pipe and the internal parts should be cleaned. Protective sleeves should be added to both ends of the sensor to prevent dirt from entering, and then stored in a dry place.

● Different Models' Flowmeter Wiring

- 1、The wiring diagram of LWY-GBQH-N(basic type) is as follows:



- 2、The wiring diagram of LWY-GBQH-A (basic type) is as follows

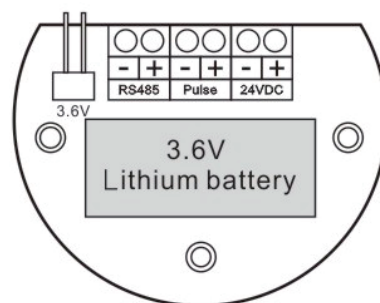


Color	Function	Remark
Brown	24V+	Two-wire current output
Blue	Land	

- 3、LWY-GBQH-B (on-site display type)

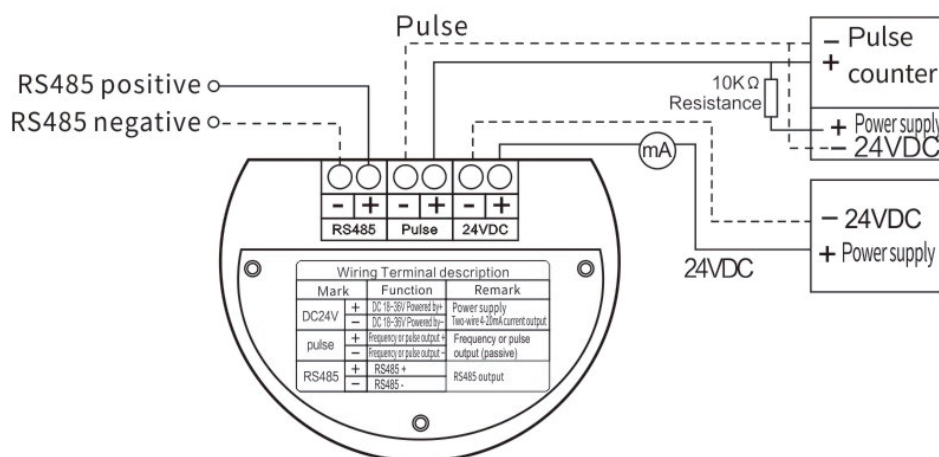
Note: The on-site display type is powered by an internal battery and does not require wiring. It has a two-wire pulse output (passive).

If RS485 communication output is required (the switch needs to be turned on).



4、LWY-GBQH-C (display output type) wiring diagram is as follows

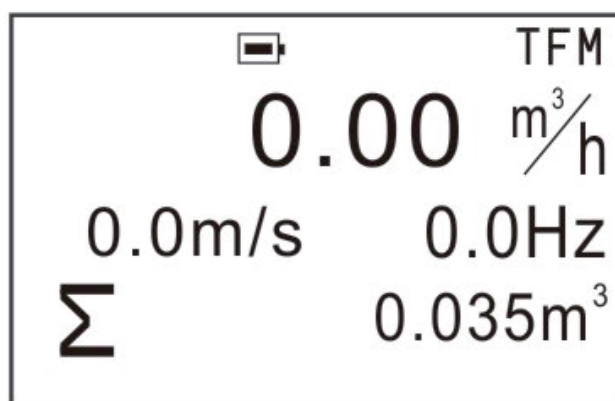
Note: The display output type requires DC24V power supply, and can have two - wire pulse output (passive), two - wire 4~20mA signal output and RS485 communication output.



● The Operation Instructions of the Meter Panel Buttons are as Follows:

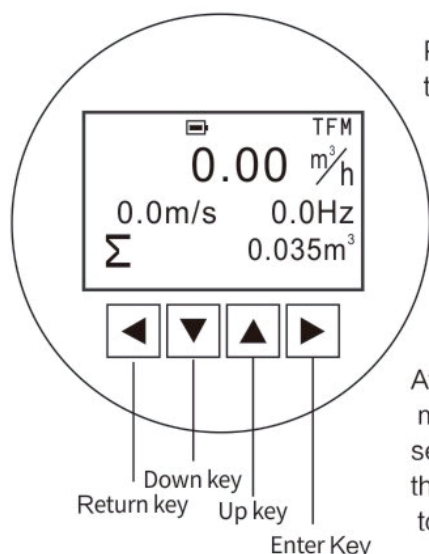
1. Working Screen

After the power is turned on, the meter first performs a self - check, and then enters the main work display state on the lower screen.

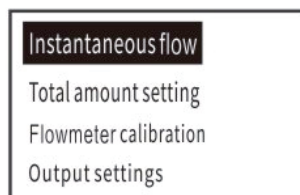


- The First Line: Displays the instantaneous flow. When there is no flow, all "0" is displayed. The flow unit is set by the menu.
- The Second Line: Displays the instantaneous flow rate and instantaneous pulse values.
- The Third Line: Displays the accumulated flow, fixed 4-digit integer display, when there is no accumulated flow, the display is all "0".

2、Key Operation



Press the Confirm button in the flow display interface to enter the setting menu shown below.



After pressing the Confirm key to enter the above setting menu, you can press the up and down keys to select the setting parameters that need to be modified, and press the Confirm key to enter the setting parameters that need to be modified.

Menu Setting and Description

1、Instantaneous Flow Settings

1.1 Flow unit	Options: L/s L/m L/h m ³ /s m ³ /m m ³ /h Nm ³ /s Nm ³ /m Nm ³ /h USG/s USG/m USG/h kg/s kg/m kg/h t/s t/m t/h Default value = m ³ /h Define the unit for instantaneous flow display
1.2 Flow decimals	Options: 0 1 2 3 Default value = 2 Define the decimal places for instantaneous flow display
1.3 Measuring range	Floating point number: 99999999.00–0.00 m ³ /h Default value = 100.0 m ³ /h
1.4 Small signal resection	Floating point number: 9.90 – 0.00 % Default value = 0.0 %
1.5 High alarm	Floating point number: 99.00 – 0.00 % Default value = 100.0 %
1.6 Low alarm	Floating point number: 9.90 – 0.00 % Default value = 0.0 %
1.7 Damping time	Floating point number: 90.0 – 0.1 Default value = 1.0s

2、Total Amount Setting

2.1 Total unit	Options: L m3 Nm3 USG kg t Default value=m3 Define the unit of total amount shown
2.2 Flow decimals	Options: 0 1 2 3 Default value = 1 Define the decimal places of total amount shown
2.3 Default total amount	Floating point number: 99999999 – 0.00 m ³ Default value=Current total After setting this value, the current total amount will be overwritten by this setting value.

Note: If the total amount displays "OverFlow!", please handle it in time (clear or preset) to avoid affecting normal measurement.

3、Flow Calibration

3.1 Current zero point calibration	Floating point number: 5.0 – 3.0 Default value = 4.000mA
3.2 Current full scale calibration	Floating point number: 21.0 – 19.0 Default value = 20.000mA

4、Output Setting

Types and parameters	1 Signal output	Signal output
	2 Equivalent output	options: High electrical level Low electrical level Default value= Low electrical level Define equivalent output form
	3 Frequency output	Floating point number: Max:5000– 0.00 Hz Default value=2000Hz

5、Communication Setting

5.1 Model	Options: RTU ASCII Default value = RTU
5.2 Baud rate	Options: 9600 19200 38400 57600 Default value = 9600
5.3 Verification method	Options: NONE(No checksum) ODD(Odd parity) EVEN(Even parity) Default value = NONE(No checksum)
5.4 Device address	Number: 253 – 1 Default value = 001

Note: For specific communication operations, please refer to the "Turbine MODBUS User Manual".

Turbine Flowmeter RS485 Communication Address Table

Variable Address Definition:

Variable Name	Register First Address	Register Length	Instruction Code or Function Code	Type of Data
Instantaneous Flow	0x01	0x02	0x04	float: Floating Point Number
Instantaneous Flow Unit	0x03	0x01	0x04	int: Integer
Total Amount	0x04	0x04	0x04	double: Double Precision
Total Unit	0x08	0x01	0x04	int: Integer
Total Amount(m ³)	0x0d	0x02	0x03 0x04	float: Floating Point Number
Instantaneous Flow	0x14	0x02	0x04	float: Floating Point Number
	0x16	0x02	0x04	float: Floating Point Number
Total Amount				
Instantaneous Flow	0x1e	0x02	0x04	float inverse
Total Amount	0x20	0x02	0x04	float inverse

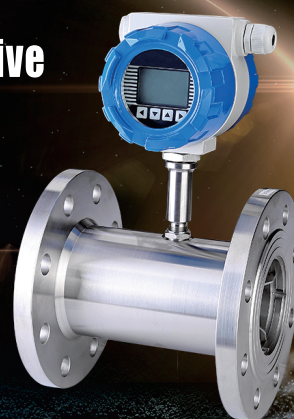
Unit Definition:

	Unit	Code
Instantaneous Flow	m ³ /h	0x03
	m ³ /m	0x04
	m ³ /s	0x05
	L/h	0x06
	L/m	0x07
	L/s	0x08
	usg/h	0x09
	usg/m	0x0a
	usg/s	0x0b
	kg/h	0x0c
	kg/m	0x0d
	kg/s	0x0e
	t/h	0x0f
	t/m	0x10
	t/s	0x11
Total Amount	m ³	0x01
	L	0x02
	usg	0x03
	kg	0x04
	t	0x05



High Accuracy, Good Repeatability, Responsive Easy To Install And Maintain

Widely used in petroleum, chemical, metallurgy, water supply, and paper industries, it is an ideal instrument for flow measurement and energy saving.



Maintenance And Common Faults

Possible common faults of the sensor and troubleshooting methods are shown in the table below. The maintenance period should not exceed six months.

No.	Fault Phenomenon	Cause	Troubleshooting Method
1	Display is off/ No display (black screen)	1. The power supply is not connected, or the voltage is incorrect. 2. Display instrument malfunction.	1. Connect the power supply and ensure the correct voltage. 2. Check the display instrument.
2	The display shows no flow reading	1. The wiring between the sensor and the display instrument is loose, disconnected, or short-circuited. 2. The pipeline is not completely filled with liquid, or the sensor is installed incorrectly.	1. Check if the wiring and connections are correct. 2. Check whether the sensor is installed correctly. 3. Open the valve or clean the pipeline. 4. Eliminate pipeline vibrations.
3	The display is unstable and the measurement is inaccurate	1. The actual flow exceeds the maximum or is below the minimum range. 2. The power supply voltage of the instrument is unstable. 3. Interference signals are too strong. 4. The sensor installation direction is incorrect. 5. The pipeline is not fully filled with liquid, or there are bubbles in the liquid. 6. The medium's viscosity is too high, or crystallization has occurred. 7. The pipeline is vibrating, or the signal cable is interfered with. 8. Display instrument malfunction.	1. Ensure the actual flow matches the measurement range of the instrument. 2. Replace the power supply as required. 3. Check the installation position and eliminate interference sources. 4. Verify the sensor's installation direction. 5. Remove bubbles and ensure the pipeline is fully filled with liquid. 6. Replace or adjust the medium's viscosity. 7. Eliminate vibrations or re-lay the signal cable. 8. Repair the display instrument.



WWW.QEEHUAPUMP.COM



WWW.QEEHUA-PUMP.COM

HEAD OFFICE IN SOUTH CHINA:

GUANGDONG QEEHUA INDUSTRY EQUIPMENT CO., LTD.

Address: No.8, East Chenwu Road, Houjie Town, Dongguan City, Guangdong Province, China.

SUBSIDIARY CORPORATION:

DONGGUAN EVER POPULAR IMPORT AND EXPORT CO., LTD.

No. 1301&1302, Tianan Cyber Park, No.1 Huangjin Road, Nancheng District,
Dongguan City, Guangdong Province, China.

SUBSIDIARY CORPORATION:

JIANGXI QEEHUA FLOW TECHNOLOGY CO., LTD.

Address: Room 110, Building 3, Hengke Industrial Park phase 1,
Economic and Technological Development Zone, Ganzhou City, Jiangxi Province, China.

SUBSIDIARY CORPORATION:

SUZHOU QEEHUA PUMP INDUSTRY CO., LTD.

Address: Room 221, Kezheng Building, No. 16, Nantiancheng Road, High - speed Railway New Town,
Xiangcheng District, Suzhou City.

SUBSIDIARY CORPORATION:

CHENGDU QEEHUA FLUID TECHNOLOGY CO., LTD.

No. 08, 3rd Floor, Building 3, No. 1108 Shengbang Street, High tech Zone, Chengdu City, Sichuan Province, China.



Copyright belongs to our company
Product specifications and technical indicators are subject to change without prior notice.

2025.09.20