

ZYZ Series Gas Rotary Flowmeter

ZYZ series intelligent gas rotary flowmeter is a volumetric flow meter that accurately measures the passage of gas. This product integrates flow, pressure, and temperature detection functions, and can automatically compensate for pressure, temperature, and compression factor. High precision, wide range, high reliability and long life.

It is suitable for the measurement of gas flow in closed pipelines, and can be widely used for the flow measurement of non-corrosive gases such as natural gas, coal gas, inert gas, and air. It is an ideal flow metering device for petroleum, chemical, industrial, civil boilers, gas surge tanks, scientific research and other departments. As a traditional volumetric instrument, it adopts the working principle of rotating fixed displacement. Its accuracy is composed of a pair of precision machined rotors and a solid measuring chamber to ensure permanent non-adjustable high precision.

The metering accuracy is not affected by the changes of gas specific gravity, pressure and flow rate. It is especially suitable for high-precision and medium flow metering range. The structure is compact and firm. The inlet does not require a straight pipe section. It is suitable for installation in narrow environments.

This product has been approved by the NMI in accordance with EN12480:2018 and OIML R137

✓ Wide range and high precision ✓ Long lifespan Anti jam Anti-theft



Product Performance

- High strength

The shell adopts high-strength aluminum alloy profiles to increase the wall thickness, so that it can withstand the stress generated during installation, and can ensure long-term dimensional stability and measurement accuracy.

- Optimize the rotor structure

The rotor head profile is optimized to change the seal type between the rotor and the shell from line seal to face seal, which improves the sealing effect and expands the scope of the instrument.

- Longer service life

The surface of the shell and the rotor has been specially chemically treated to form a hard oxide film on the surface to enhance wear resistance and corrosion resistance. There is no wear and no contact seal between the rotor and the rotor to ensure long-term stable operation.

- High precision and high reliability

Imported high-precision ball bearings have permanent high precision without adjustment, and are not affected by changes in medium conditions, ensuring long-term accuracy of the product.

- Greater range

The range of different specifications and models can reach 160:1 or even 250:1, which can be suitable for measuring gas flow with large load changes.

- Good versatility

All flow sensors, pressure sensors, temperature sensors, etc. can use general accessories.

- Low pressure loss

The pressure loss of flowmeters of different specifications is 0.05kPa ~ 0.5kPa.

- High performance and low power consumption

Adopting advanced microcomputer technology and high-performance integrated chip, the whole machine has powerful functions and superior performance. Using micro-power circuit design, the whole machine has low power consumption, and the built-in battery can run continuously for more than 5 years.

- The motherboard is stable and reliable

The main board of the circuit adopts surface mount technology, the whole machine has compact structure, strong anti-interference ability and high reliability.

- Independent battery compartment

Easy to install, users can replace the battery without affecting the use of the motherboard.

Specifications

Item	caliber (DN)	Flow range (m ³ /h)	Ratio	Starting flow (m ³ /h)	Cycle Volume (L)	Pressure lose (Pa)	Max Speed (RPM)
G6	20	0.25-10	40:1	0.02	0.22	45	757
G10	25	0.4-16	40:1	0.02	0.22	50	1212
G16		0.4-25	65:1	0.02	0.22	60	1890
G16	40	0.4-25	65:1	0.02	0.22	50	1890
G25		0.4-40	100:1	0.02	0.22	60	3030
G25	50	0.65-40	65:1	0.06	0.7	70	1130
G40		0.65-65	100:1	0.06	0.7	260	1836
G65		0.65-100	160:1	0.06	0.7	450	2824
G65	80	0.65-100	160:1	0.09	1.1	180	1766
G100		0.65-160	250:1	0.09	1.1	300	2826
G160	80	1.65-250	160:1	0.5	2.06	350	2026
G160	100	1.65-250	160:1	0.55	2.55	320	1635
G250	100	2.65-400	160:1	0.6	3.97	500	1680
G400	100	4-650	160:1	0.6	3.97	530	2728
G400	150	4-650	160:1	0.6	13.06	500	829
G650	150	6.5-1000	160:1	0.65	16.16	550	1031
G1000	200	10-1600	160:1	0.7	19.9	550	1340

I) Accuracy class 1.0 : 0.05Q_{max} ≤ Q ≤ Q_{max} is ±1.0% , Q_{min} ≤ Q < 0.05Q_{max} is ±2.0%
1.5: 0.05Q_{max} ≤ Q ≤ Q_{max} is ±1.5% , Q_{min} ≤ Q < 0.05Q_{ma} is ±3.0%;

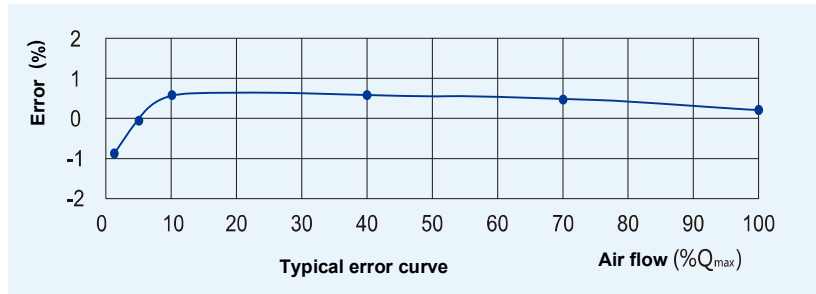
II) Repeatability: better than 0.2%;

III) Short-term overload: can withstand 30 minutes of operation under 1.25Q_{max}, the meter will not be damaged;

IV) Pressure rating (MPa): 1.6

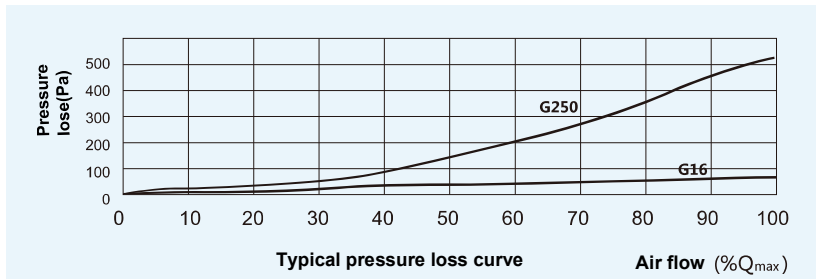
Typical error curve

The curve in the figure is measured with air as the medium under atmospheric pressure and ambient temperature.



Typical pressure loss curve

The curve in the figure is measured with air as the medium under atmospheric pressure and ambient temperature.



Electrical performance index

- Working power supply and machine power consumption
Internal power supply: a set of 3.6VDC lithium batteries, the screen displays the battery capacity in real time, and has a two-level battery undervoltage alarm to remind users to replace the battery in time (ER34615); the battery can be used for 5 years.
- External power supply: (10~24) VDC, ripple ≤50mV, when the external power supply is connected, the internal power supply is automatically disconnected, and the whole machine is powered by the external power supply; the power consumption of the whole machine is ≤1W.
- Control signal output
The logic gate circuit output can be set to high level according to user requirements, and the output amplitude is ≥2.8V.
- ♦ Battery under-voltage alarm signal (for BAT1, IC card controller): Normally low level, amplitude ≤0.2V;
- ♦ Valve closing alarm signal (for BAT2, IC card controller): Normally low level, amplitude ≤0.2V.
- Output signal
Signal transmission between intrinsically safe products and non-intrinsically safe products must pass through a safety barrier.
- ♦ Working condition pulse signal (three-wire system +24V, GND, FOUT):
Directly amplify and output the working condition pulse signal detected by the flow sensor, with a transmission distance of ≤500m, and work with external power supply;

- ♦ (4-20) mA standard analog signal: (4-20) mA standard analog signal linearly corresponds to (0-Q_{max}) m³/h standard volume flow, the flow range is set by the instrument parameters, the transmission distance is less than 200m, the wiring method Two-wire system (IO-, IO+) or three-wire system (DC+, GND, IO-), powered by external voltage;
- ♦ IC card standard volume signal: output in pulse signal train, the period is 20ms, 50ms, 500ms, the pulse amplitude is 3V, the normal state is low level, the transmission distance is ≤50m, and each pulse represents 0.01m³, 0.1 m³, 1m³, 10m³, suitable for use with IC card system;
- ♦ RS-485 communication signal (A, B, DC+, GND): directly networked with the host computer, the transmission distance is ≤1200m, and it can remotely transmit the temperature, pressure, instantaneous flow rate, standard volume total and other instrument measurements of the measured medium. Parameters, fault codes, operating status, battery capacity and other status information are powered by an external power source.
- ♦ The stored data is read by the host computer through the RS-485 interface. A host computer can manage the upload data of up to 32 flowmeters.

- Explosion-proof mark: ExiaIICT4 Ga
- Protection level: IP65

Conditions

Standard status condition

P=101.325 kPa, T=293.15K

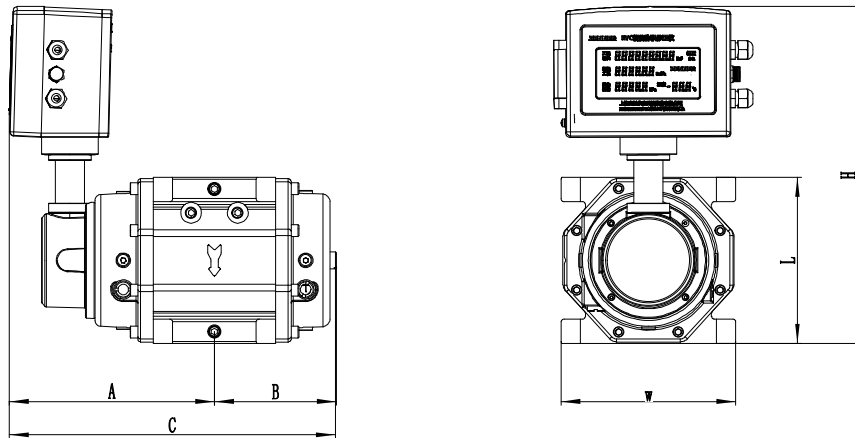
Environmental conditions

- A.Ambient temperature: -25°C ~ +55°C
- B.Relative humidity: 5% ~ 95%
- C.Atmospheric pressure: 70kPa ~ 106kPa

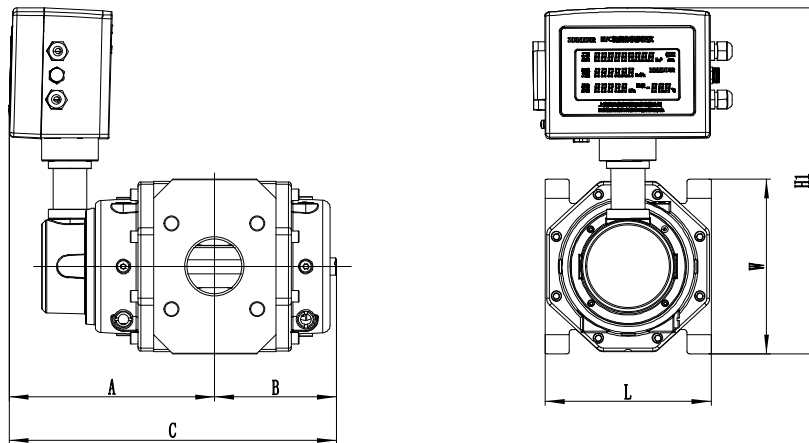
Medium condition

- A.Medium temperature: -30°C ~ +60°C
- B.Measuring medium: natural gas and various non-corrosive gases after drying and filtering.

Dimensions



Vertical installation diagram



Horizontal installation diagram

Installation size table

Unit (mm)

Item	caliber (mm)	Dimensions							Weight (kg)	Flange connection	
		L	H	H1	W	C	A	B		φK	thread
G10	25	121	321	321	120	298	198	100	4.7	85	4-M12
G16		121	321	321	120	298	198	100	4.7	85	4-M12
G16	40	171	321	321	120	298	198	100	6.2	110	4-M16
G25		171	321	321	120	298	198	100	6.2	110	4-M16
G25	50	171	346	352	185	336	211	125	10.4	125	4-M16
G40		171	346	352	185	336	211	125	10.4	125	4-M16
G65		171	346	352	185	336	211	125	10.4	125	4-M16
G65	80	171	346	352	185	410	248	162	13.8	160	8-M16
G100		171	346	352	185	410	248	162	13.8	160	8-M16
G160	80	241	378	375	226	422	220	202	23.6	160	8-M16
G160	100	241	378	375	226	470	244	226	26.8	180	8-M16
G250	100	241	378	375	226	608	313	295	38	180	8-M16
G400	100	241	378	375	226	608	313	295	38	180	8-M16
G400	150	460	460	450	450	698	295	403	57	240	8-M20
G650	150	460	460	450	450	828	335	493	67	240	8-M20
G1000	200	460	460	450	450	910	400	510	82	295	12-M20