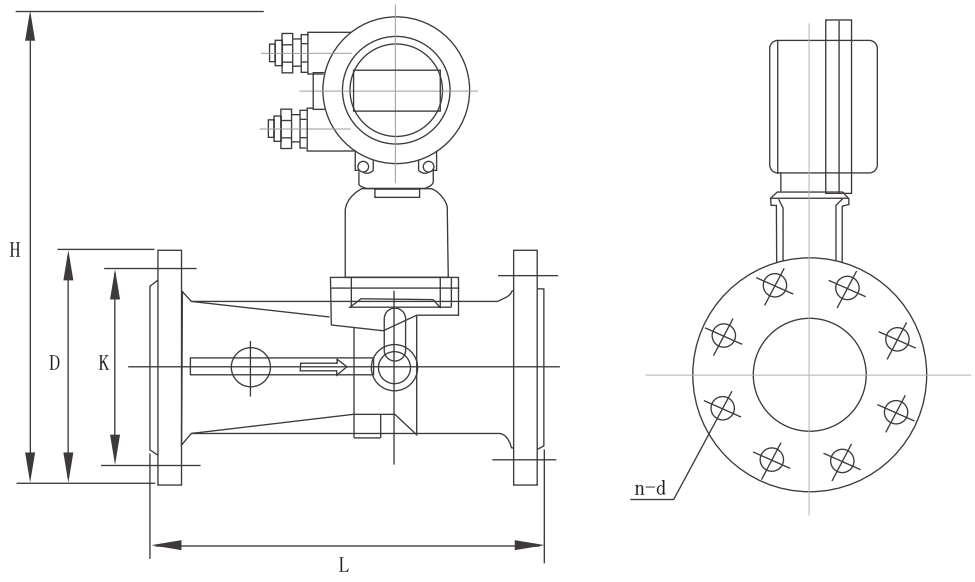
product principle

FM310 series intelligent precession vortex flowmeter is a new type of gas flow meter with domestic leading level developed by our company. The flowmeter integrates the functions of flow, temperature and pressure detection, and can automatically compensate the temperature, pressure and compression factors.

Product features

◆ no mechanical moving parts, not easy to corrosion, stable and reliable, long life, long-term operation without special maintenance;
◆ 16-bit computer chip, high integration, small size, good performance, strong function;
◆ intelligent flowmeter integrates flow probe, microprocessor, pressure and temperature sensor into one, and adopts built-in combination to make the structure more compact. It can directly measure the flow, pressure and temperature of the fluid, and automatically track compensation and compression factor correction in real time. The double detection technology can effectively improve the detection signal strength and restrain the interference caused by pipeline vibration.
◆ the domestic leading intelligent seismic technology is adopted to effectively suppress the interference signals caused by vibration and pressure fluctuation;
◆ the use of Chinese dot matrix display screen, display a number of digits, reading intuitive and convenient, can directly display the working state of the volume flow, the standard state of the volume flow, total, as well as media pressure, temperature and other parameters;
◆ EEPROM technology, convenient parameter setting, can be permanently stored, and can store up to one year's historical data;
◆ the converter can output frequency pulse, 4 ~ 20mA analog signal, and has RS485 interface, can be directly connected to the computer network, transmission distance up to 1.2km;
◆ alarm output of multi-physical parameters, which can be selected by the user;
◆ the meter head can rotate 360 degrees, easy to install and use;
◆ with the company's FM data collector, remote data transmission can be carried out through the Internet or telephone network
◆ the pressure and temperature signals are input modes of the sensor, with strong interchangeability;
◆ the machine has low power consumption, which can be supplied by internal battery or external power supply.

Size chart (mm)



Installation dimension of flow meter (1.6MPa)

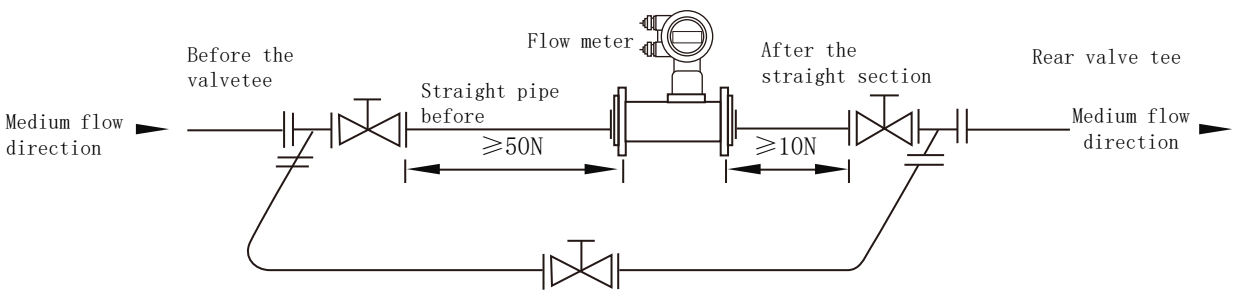
model	Nominal diameter DN	Nominal diameter (MPa)	L	H	D	K	n-d
FM310-15A	15	1.6 2.5 4.0	160	280	95	65	4-ϕ14
FM310-15B			200(180)				
FM310-20A	20		160	335	105	75	4-ϕ14
FM310-20B			200(180)				
FM310-25A	25		180	350	115	85	4-ϕ14
FM310-25B			200				
FM310-32A	32		198	355	140	100	4-ϕ18
FM310-32B			198				
FM310-40A	40		232	330	150	110	4-ϕ18
FM310-40B							
FM310-50A	50		230	380	165	125	4-ϕ18
FM310-50B							
FM310-65A	65	1.6	300	405	185	145	4-ϕ18
FM310-65B		2.5、4.0	290				8-ϕ18
FM310-80A	80	1.6、2.5、4.0	330	410	200	160	8-ϕ18
FM310-80B							
FM310-100A	100	1.6	410	440	220	180	8-ϕ18
FM310-100B		2.5、4.0			235	190	8-ϕ22
FM310-125A	125	1.6	516	470	250	210	8-ϕ18
FM310-125B		2.5、4.0			270	220	8-ϕ26
FM310-150A	150	1.6	585	490	285	240	8-ϕ22
FM310-150B		2.5、4.0	575		300	250	8-ϕ26
FM310-200A FM310-200B	200	1.6	700(670)	550	340	295	12-ϕ22
		2.5			360	310	12-ϕ26
		4.0			375	320	12-ϕ30

Installation of flow meter

(1) the flow meter shall be installed according to the flow direction sign.

(2) the flowmeter can be installed horizontally, vertically or at any Angle.

(3) see the figure for the requirements of the upstream and downstream straight pipe section.



Flowmeter specifications, basic parameters and performance indicators

Nominal diameter DN (mm)	Flow range (m^3/h)	Accuracy level	repetitive
15	0.3~12	1.0 1.5	Less than 1/3 of the absolute value of the fundamental error limit
20	1.2~15		
25	2.5~30		
32	4.5~60		
40	7~70		
50	10~130		
65	20~300		
80	30~400		
100	50~800		
125	80~1000		
150	190~1900		
200	240~3600		

Note: 1. Accuracy: is the system accuracy after temperature and pressure correction;
2.A and B are used to distinguish different flow ranges of the same diameter.
3.2 standard condition: P=101.325KPa, T=293.15K

service conditions

◇ Ambient temperature: -30℃ ~ +65℃ relative humidity: 5% ~ 95%

◇ Dielectric temperature: -20℃ ~ +80℃ atmospheric pressure: 86KPa ~ 106KPa electrical performance indicators

Working power supply:

◇External power supply: +24VDC±15%, ripple < 5%, suitable for 4-20ma output, pulse output, alarm output, rs-485, etc.
◇Internal power supply: 1 set of 3.6v lithium battery (ER26500), when the voltage is lower than 3.0v, there is an undervoltage indication.
3.4.2 power consumption of the whole machine:
◇External power supply: <2W;
◇Internal power supply: average power consumption is 1mW, can be used continuously for more than two years. 3.4.3 pulse output mode;
◇The working condition pulse signal is directly amplified and output by means of optocoupler isolation of the working condition pulse signal detected by the flow sensor. The high level is ≥20V, and the low level is ≤1V.
◇Calibration pulse signal, matched with IC card valve controller, high level amplitude ≥ 2.8v, low level amplitude ≤ 0.2v, unit pulse represents volume volume can be set range: 0.001 m3 ~ 100 m3. When selecting the single value, it should be noted that the frequency of calibration pulse pulse signal should be ≤900Hz.
◇Calibration pulse signal, amplified output through optocoupler isolation, high level ≥20V, low level ≤1V.

Rs-485 communication (photoelectric isolation) can achieve the following functions:

A. The rs-485 interface is adopted, which can be directly connected to the upper computer or secondary table to transmit the temperature and pressure of the remote display medium and the standard volume flow rate after temperature and pressure compensation Total standard volume;
B. by RS - 485 interface with HW - Ⅰ data collector, can form the telephone network communication system, a data collector with 15 meter;
C. by RS - 485 interface with HW - Ⅱ data collector, shall constitute a broadband communication systems, from the INTERNET to transmit data, a data collector can bring 8 meter.

4～20mA Standard current signal (photoelectric isolation)

Proportional to the standard volume flow, 4mA corresponds to 0 m3/h, and 20 mA corresponds to the maximum standard volume flow (the value can be set in the first-level menu).

Control signal output

1. Lower limit alarm signal (LP) : photoelectric isolation, high and low level alarm, alarm level can be set, working voltage +12V~+24V, maximum load current 50mA;

2. Upper limit alarm signal (UP) : photoelectric isolation, high and low level alarm, alarm level can be set, working voltage +12V~+24V, maximum load current 50mA;

3. Battery undervoltage alarm output (BL terminal, IC card controller) : logic gate circuit output, normal output low level, amplitude ≤ 0.2v; Alarm output high level, amplitude ≥ 2.8v, 100 k Ω load resistance p; 3.5 real-time data storage function

4. Closing valve alarm output (BC end, IC card controller) : logic gate circuit output, normal output low level, amplitude ≤ 0.2v; Alarm output high level, amplitude ≥ 2.8v,100 k Ω load resistance p;

In order to meet the needs of data management, the flowmeter adds the function of real-time data storage.

A. Daily record: the date of the last 5 years, the standard volume flow and the total volume record at the time of zero.

B. Monthly record: the monthly standard volume flow and total volume records for the last 5 years.

C. Time-interval records: 1200 time-interval records of date, time, temperature, pressure, standard volume flow and total volume.

The above stored data can be read by a computer to form data reports and graphs for analysis.

◇Network communication management software functions

◇The flowmeter is matched with the data collector, which can communicate through telephone line or broadband network. The historical data and parameters of each flowmeter in the network can be read and set. At the same time, the communication management software can realize the perfect management function.

◇Explosion-proof mark: ExdIIBT4; ExiaIICT4

◇Protection level: IP65

◇Connection port: outlet interface is M20×1.5 internal thread.

Selection table

FM310-	025	A	F	E2	D2	P1	B1	detailed
FM310								FM310 Gas flow sensor
	025							DN15 DN20 DN25 DN32 DN40 DN50 DN65 DN80 DN100 DN125 DN150 DN200 (for special pipe diameter, please consult the sales engineer) caliber option, 025 represents DN25
		A						Type A flow range
		B						Type B flow range
			F					Flange connection
				E1				1.0 level
				E2				1.5 level
					D1			Internal 3.6v power supply, without output and display
					D2			DC24V power supply
						P1		1.6Mpa
						P2		2.5Mpa
						P3		4.0Mpa
							B1	Stainless steel
							B2	Aluminum alloy

Note: special customization is supported

* when ordering, please indicate medium flow direction, medium type, pipe diameter and expected measurement interval value. We can help you to complete the accurate effect when the factory