Intelligent Gas Precession Vortex Flowmeter

Overview

Intelligent gas precession vortex flowmeter is a new type of gas flow meter which developed by our company with advanced technology. It has the function of measuring flow, temperature, and pressure; it also can compensate temperature, pressure and compressible factor automatically. It is an ideal instrument of gas measurement which is used for petroleum, chemical industrial, electricity, metallurgy, and so on.

Features

1. Has no mechanical moving parts, difficult to be corroded, steady and reliable, with long operating life, can work for a long time without special maintenance;

2. Adopts 16 bits computer chip, with high integration level, small volume, excellent property, and great function of complete instrument;

3. Intelligent flowmeter integrates flow probe, microprocessor, pressure and temperature sensor, selects in-built combination for more compact structure, can measure fluid's flow, pressure and temperature directly, and realizes real-time tracking and compensation, as well as correcting compressible factor;

4. Adopts double detecting technique to improve the strength of detection signal effectively and suppress the interference from pipeline's vibration;

5. Adopts national leading vibration-proof technique, which can suppress interference signal caused by vibration and pressure fluctuation;

6. Adopts English dot matrix display which displays more digitals, read intuitively and conveniently, can display parameters directly such as volume flow rate under working state and standard state, volume dose, mediem pressure , temperature, and so on;

7. Adopts EEPROM technique, parameters can be set conveniently and preserved permanently, the time of preserving history date can reach up to one year;

8. Converter can output frequency pulse, 4~20mA analog signal, and has RS485 interface, it can build a network with microcomputer directly, the transmission distance can reach 1.2km;

9. Outputs warning with various physical parameters, users can choose any one from them;

10. Flowmeter head can rotate 360 degree, can be installed and used easily and conveniently;

11. Coordinates with our company's FM date acquisition unit, can transmit remote date through internet or telephone network;

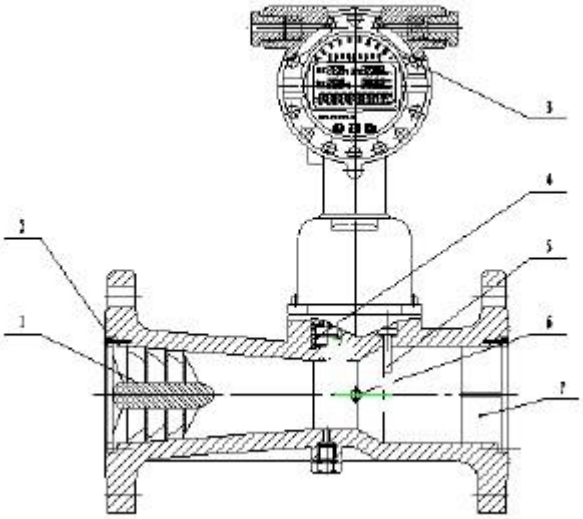
12. Pressure and temperature signals are input by sensor, with high interchangeability;

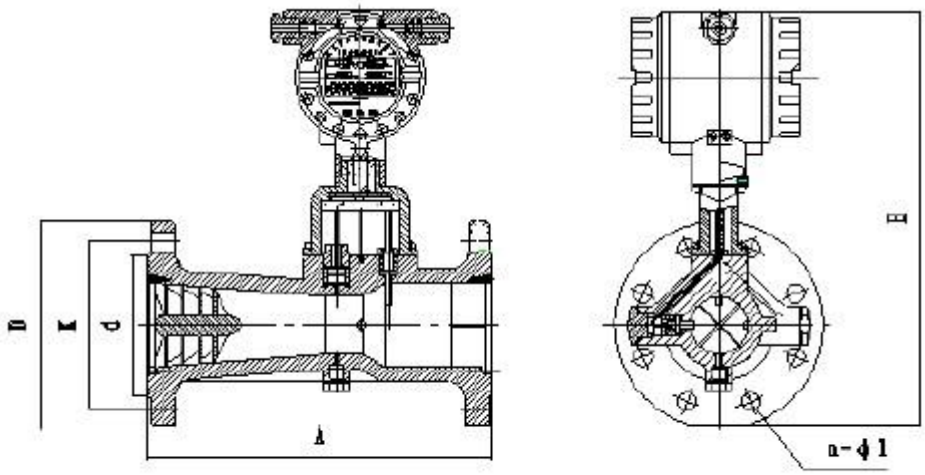
13. Overall power dissipation is low, can be powered by internal battery or external power source;

14. With multiple materials that can measure special gas, such as red copper for chlorine.

Operating Principle

Flow transmitter's profile is similar to venturi's molded line (see in picture). Place a group of spiral guide vanes in the inlet side, when fluid enter in the flow transmitter; the guide vanes force the fluid causing drastic spiral flow. When the fluid enters in the diffuse part, the spiral flow starts second rotating and forms gyro-type vortex propulsion phenomenon because of flow-back effect. The precession frequency is proportional to the flow volume, and it isn't affected by fluid's physical property and density. Detecting element can get good linearity in quite side flow range after measuring the second vortex procession frequency of the fluid. Signal is magnified, filtered, shaped by amplifier, then it is converted to pulse signal which is proportional to the flow rate. Then the pulse signal is sent to microprocessor for flow totalizing, and the LCD will display the measured result (instantaneous flow, cumulative flow, and temperature and pressure data).





Flange connection

Main Technical Parameters

Nominal Diameter DN（mm）	Range of Flow	Working Pressure(MPa)	Accuracy	Repeatability
15	1.5～12	1.6 2.5 4.0 6.3 10 16 25 42	1.0 1.5	Smaller than 1/3 absolute value of basic error limit
20	2～15			
25	3.0～30			
32	6.0～60			
40	7.0～70			
50	10～130			
80	30～400			
100	70～800			
125	90～1000			
150	190～1900			
200	240～3600			

Installing Boundary and Dimension

Nominal Diameter	15	25	40	50	80	100	150	200	250	300
L（mm）	300	300	350	350	450	450	500	600	600	650
H（mm）	300	300	300	300	350	380	400	450	500	550

Nominal Diameter DN（mm）	Nominal Pressure（MPa）	Dimension（mm）		Material of Meter		Weight（kg）	Connection
		Length of meter A	Height H	Stainless steel	Aluminum alloy		Flange Thread Clamp
15/20	1.6、2.5、4.0	160	360	Stainless steel	Aluminum alloy	6	
	6.3、10	160	365	Stainless steel		8	
25	1.6、2.5、4.0	180	367	Stainless steel	Aluminum alloy	7	
	6.3、10	180	378	Stainless steel		10	
32	1.6、2.5、4.0	200	383	Stainless steel	Aluminum alloy	9	
	6.3、10	200	402	Stainless steel		12	
40	1.6、2.5、4.0	200	383	Stainless steel	Aluminum alloy	9	

	6.3、10	200	402	Stainless steel		12	
50	1.6、2.5、4.0	230	403	Stainless steel	Aluminum alloy	11	
	6.3、10	230	421	Stainless steel		14	
80	1.6	330	438	Stainless steel	Aluminum alloy	11	
	2.5、4.0	330	438	Stainless steel		18	
	6.3、10	330	446	Stainless steel		21	
100	1.6	410	468	Stainless steel	Aluminum alloy	14	
	2.5、4.0	410	475	Stainless steel		18	
	6.3、10	410	483	Stainless steel		33	
150	10	585	542	Stainless steel	Aluminum alloy	21	Flange
	1.6、2.5	585	549	Stainless steel		52	
	4.0、6.3、10	585	572	Stainless steel		72	
200	1.0	700	618	Stainless steel	Aluminum alloy	41	
	1.6、2.5	700	626	Stainless steel		117	
	4.0、6.3、10	700	634	Stainless steel		127	