

Product Overview

The MSV Vortex flow meter is a kind of speed type flow meter, which is based on karman vortex principle.

The vortex frequency “f” is proportional to flow velocity “v”, so by measuring the karman vortex frequency can calculate the instantaneous flow rate.

Vortex flow meter is widely used in industry of petroleum, chemical, metallurgy, machinery, food, papermaking, and urban pipeline heating-apply, water-supply, gas-supply etc. to service the single-phase fluid of low viscosity liquid, gas, steam, etc. for process flow measuring and energy saving management.



Features:

- 1 Low power consumption CPU processor, LCD display
- 2 Installation & maintenance convenient, verification cycle about 2 years
- 3 Simple structure, no moving parts, long-term reliably
- 4 Range ability: 1:10, Turndown ratio 1:10
- 5 Low pressure loss, low operation cost, energy saving
- 6 Within certain range of Reynolds number, the output signal is not affected by the fluid's changes in composition and physical properties. Instrument's coefficient only relates to the vortex occurred body's shape and size. Generally, it is not necessary to calibrate the instrument coefficient after replacing accessories.
- 7 Both local display and long distance transmission to computer in control room available.
- 8 Detecting component not directly contacting the measured medium, so instrument performance is stable.
- 9 Built-in temperature & pressure compensation, current output photoelectric isolated, thus a good ability to suppress common mode disturbance.

Technical data

1. Medium temperature: $-25^{\circ}\text{C} \sim +350^{\circ}\text{C}$
2. Mounting style: Wafer or flange type for DN15~DN300, Insertion type for DN300~DN1000
3. Flow velocity: Steam: $<4 \sim 70\text{m/s}$, Liquid: $0.7 \sim 7\text{m/s}$, Gas: $5 \sim 70\text{m/s}$
4. Pressure rating: PN16, PN25, PN40, higher pressure available on request
5. Pressure loss coefficient: $C_d \leq 2.6$
6. Accuracy: 0.5%, 1.0%, 1.5% for Wafer type and Flange type, 1.5%, 2.5% for Insertion type
7. Power supply: DC12V or DC24V for flow sensor, DC24V for transmitter
DC24V, DC12V or 3.6V lithium battery for local display type
8. Signal output: Frequency $1 \sim 2600\text{Hz}$ for sensor , Low level $\leq 1\text{V}$, High level $\geq 5\text{V}$, 4-20mA (2-wire) for transmitter
9. Seismic performance: Piezo-electric crystal probe $\leq 0.2\text{g}$, Differential capacitance probe $\leq 2.0\text{g}$
10. Ambient temperature: $-30^{\circ}\text{C} \sim +65^{\circ}\text{C}$, $-10^{\circ}\text{C} \sim +50^{\circ}\text{C}$ for transmitter local indicating
11. Ambient humidity: 5~85%RH
12. Output signal transmitting distance: $\leq 500\text{m}$
13. Straight pipe requirement: Upstream $\geq 10D$, Downstream $\geq 5D$
14. Ex-protection: Intrinsically safe explosion-proof: Exia II CT2 - T5
15. Weather proof: IP65 for ordinary type, IP68 for submerged type
16. Transmitter casing material: aluminum alloy
Body material: SS304, other material on customer request

Flow range reference table: (The lower limit flow is related to the fluid's density)



DN	Flow range (m3/h) for In-line type			Accuracy
	Liquid	Gas	Steam	
25	1.4 - 12	8.8 - 124	7 - 124	0.5% 1.0% 1.5%
32	2.0 - 20	15 - 200	12 - 200	
40	3.2 - 36	23 - 300	18 - 300	
50	5 - 56	35 - 450	28 - 450	
65	8.2 - 96	62 - 820	50 - 820	
80	12.5 - 145	92 - 1200	75 - 1200	
100	20 - 224	142 - 1950	120 - 1950	
125	30 - 352	220 - 3000	175 - 3000	
150	44 - 512	320 - 4400	260 - 4400	
200	79 - 920	565 - 7800	440 - 7800	
250	140 - 1200	850 - 12400	720 - 12400	
300	175 - 2020	1250 - 17500	1020 - 17500	
DN	Flow range at center of pipeline (m3/h) for Insertion type			Accuracy
	Liquid	Gas	Steam	
300	127 - 1650	1810 - 13500	1260 - 13500	1.5% 2.5%
400	226 - 2950	3250 - 23800	2250 - 23800	
500	353 - 4800	5560 - 37800	3560 - 37800	
600	510 - 6620	7320 - 54600	5100 - 54600	
800	910 - 11800	13200 - 96700	9100 - 96700	
1000	1450 - 18500	20100 - 151600	14500 - 151600	
1200	2050 - 25650	27500 - 209000	20500 - 209000	
1500	3200 - 40300	45500 - 335000	32000 - 335000	
2000	5600 - 71400	80200 - 608600	56000 - 608600	

Order information

1. Need to know ID (inner diameter) of pipe, fluid medium, fluid state, working pressure, working temperature, actual flow rate (Min. / Nor. / Max.)
2. According to the above process information and flow range reference table, select the suitable pipe diameter, the fluid's maximum flow shall be not less than the selected meter's 50% rated maximum flow.

Code	Description	Remark
HGVF-	Vortex flow meter	
25 32 . . . 2000	DN25, DN32,DN2000	Pipe size
Y	With temperature and pressure compensation	Function
N	No temperature and pressure compensation	
F1	4-20mA (Load≤750 Ω)	Output
F2	Pulse	
F3	RS485/232	
F4	HART	
J1	Liquid	Fluid state
J2	Gas	
J3	Saturated steam	
J4	Superheated steam	
L1	Wafer type (include companion flanges, bolts & nuts)	Mounting
L2	Flange type	
L3	Simple insertion type	
L4	Insertion type with ball valve integrated	
0.5 1.0 1.5	0.5%, 1.0%, 1.5%, 2.5%	Accuracy
T1	-20 to 250℃	Fluid temperature
T2	-100 to 380℃	
P1	1.6Mpa	Pressure rating
P2	2.5Mpa	
P3	4.0Mpa	
P0	Other pressure	
D1	12VDC	Power supply
D2	24VDC	
D3	3.6V lithium battery	
B1	SS304 (CF8)	Body material
B2	Special material	
Ex	Intrinsically safe explosion-proof Exia II CT2 - T5	Ex-protection
Y	Integral type	Structure
F	Remote type	

Device Features

- Simplistic structure with minimal moving parts, guarantee a longer operation life.
- 1 Year Warranty included
- Rapid response, reliable in automation environment for monitoring and control.
- Built in memory that can securely store operational data and parameters.
- Industry 4.0 Ready – wireless measurement through the Sigfox LPWAN into the * **Hive IoT** backend for analysis.
- Programming Language : English



What is Industry 4.0?

Industry 4.0 is a name for the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things, cloud computing and cognitive computing.

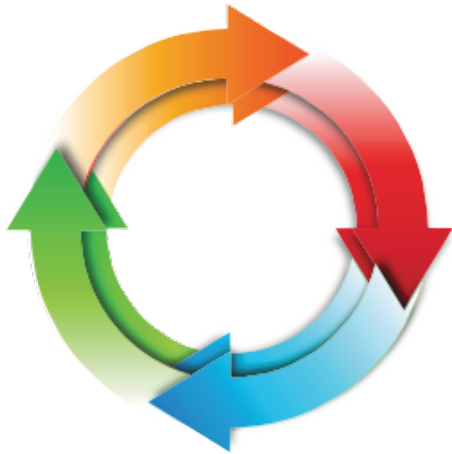


SigFox LPWAN

SigFox is a Low Power Wide Area Network designed to host millions of devices across the globe. Each Flow Meter is equipped with a SigFox ready microchip. The chip connects securely with the SigFox network through an encryption process to store data to the cloud for analysis

*Each device includes 3 year SigFox subscription

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