

## FMV813 Gas Liquid Steam Vortex Flowmeter

### MAIN FEATURES

- It can realize the continuous disassembly and disassembly of the sensor.
- It has a wide measuring range, high precision, small pressure loss, high reliability and long-term stability.
- Simple structure, convenient installation and maintenance, no moving parts, no mechanical wear.
- The new design, the body adopts precision casting process, beautiful appearance, high temperature resistance and strong corrosion resistance.
- Commonly used signals have pulse or analog signals, the signal is stable, and the anti-interference ability is strong.
- Adopt the descrambling circuit and anti-vibration sensor head to make the instrument have certain anti-environmental vibration performance.



### OVERVIEW

FMV813 vortex flowmeter is a flowmeter applying Karman vortex principle. It is mainly used for flow measurement of industrial pipeline medium fluid, such as air, compressed air, steam, superheated steam, saturated steam and other gases, liquids and other media.

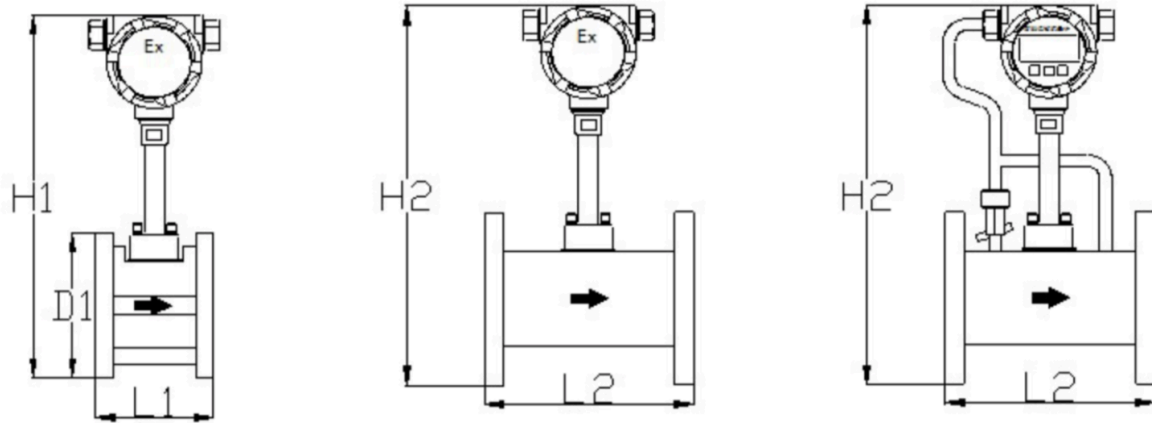
The vortex flowmeter has no moving mechanical parts, so it has high reliability and small maintenance. Instrument parameters can be stable for a long time. The vortex flowmeter uses a piezoelectric stress sensor with high reliability and can operate in the operating temperature range of -20 °C to +250 °C. There are analog standard signals and digital pulse signal outputs, which are easy to use with digital systems such as computers. It is a relatively advanced and ideal measuring instrument. Widely used in chemical, pharmaceutical, paper, metallurgy, electric power, environmental protection, food and other industries.

### SPECIFICATION

Measuring medium	Liquid, gas, steam (saturated steam, superheated steam)
Nominal diameter	DN15-DN300
Accuracy	Gas-free compensation type: 1.5% (DN15~DN25), 1.0% (DN32-DN200), 1.5% (.DN250-DN300) Liquid without compensation type: 1.0% (DN15-DN300) Temperature and pressure compensation type: 1.5% (DN25-DN300)
Range ratio	When the gas density is 1.2kg/m <sup>3</sup> , the turndown ratio is 8:1 When the liquid density is 1000kg/m <sup>3</sup> , the turndown ratio is 8:1 (when the medium density is different, the turndown ratio will change)
Medium temperature	-40°C-+260°C, -40°C-+300°C
Power supply	24VDC±5%, lithium battery 3.6VDC (battery life is more than 2 years)
Output signal	The instantaneous flow corresponds to the voltage frequency pulse (low level ≤ 1V, high level ≥ 6V) Instantaneous flow corresponds to 4-20mA output (load resistance ≤ 300 ohms)
Communication	RS485, HART (optional)
Body material	Stainless steel (more customized)
Electrical Interface	M20*1.5 internal thread

### TYPES

Flange vortex flowmeter	Pair clamp vortex flowmeter

**DIMENSION**


DN/L(mm)	H1	H2	D1	L1	L2	DN/L(mm)	H1	H2	D1	L1	L2
DN15	515	530	45	65	170	DN80	563	605	132	70	280
DN20	521	535	58	65	170	DN100	585	623	156	70	300
DN25	521	540	58	65	250	DN125	611	653	184	70	350
DN32	521	553	58	65	250	DN150	637	680	211	70	350
DN40	519	558	85	70	250	DN200	695	736	266	98	400
DN50	531	570	99	70	250	DN250	747	790	319	114	450
DN65	548	592	118	70	250	DN300	798	840	370	130	500

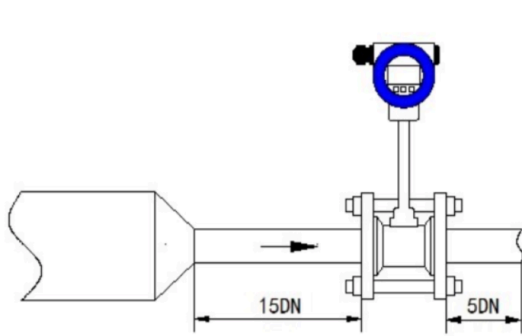
**FLOW RANGE**

DN(mm)	Liquid		Gas/steam	
	Range (m <sup>3</sup> /h)	Frequency range(Hz)	Range (m <sup>3</sup> /h)	Frequency range(Hz)
20	1~10	40~396	5.5~50	218~1982
25	1.6~16	32~325	8.5~70	172~1420
32	2~20	18~264	12~120	156~1080
40	2.5~25	13~130	22~220	115~1147
50	3.5~35	9~93	36~320	96~854
65	6.5~68	8~82	50~480	61~583
80	10~100	6~65	70~640	45~417
100	15~150	5~50	110~1100	43~367
125	27~275	5~47	200~1700	33~290
150	40~400	4~40	280~2240	27~221
200	80~800	3~33	580~4960	24~207
250	120~1200	3~26	970~8000	20~171
300	180~1800	2~22	1380~11000	17~136

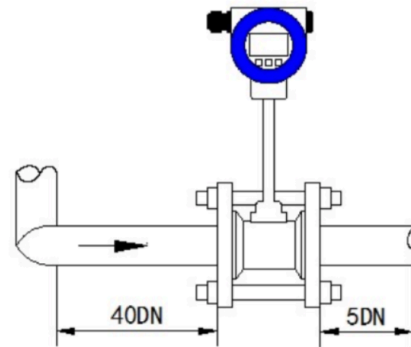
### INSTALLATION

- The sensor shall be installed in horizontal, vertical, inclined (liquid flow from bottom to top) pipes with the same diameter. The upstream and downstream of the sensor shall be equipped with a certain length of straight pipe section, whose length shall meet the requirements of front straight pipe section 15-20D and rear straight pipe section 5-10D.
- The pipeline near the installation of liquid sensor shall be filled with the measured liquid.
- The sensor shall not be installed on the pipeline with strong mechanical vibration.
- The inner diameter of the straight pipe section shall be consistent with the sensor diameter as much as possible. If it cannot be consistent, the pipe with a slightly larger diameter than the sensor diameter shall be used, and the error shall be  $\leq 3\%$  and no more than 5mm.

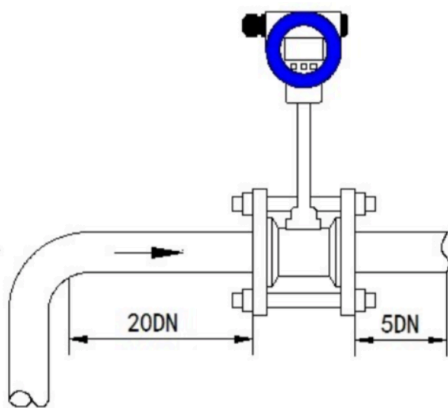
The sensor shall not be installed in the place with strong electromagnetic field interference, small space and inconvenient maintenance.



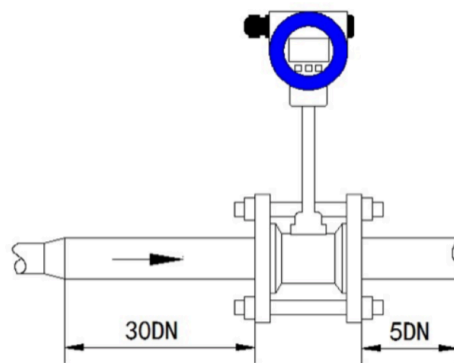
• oncentric contraction fully open valve



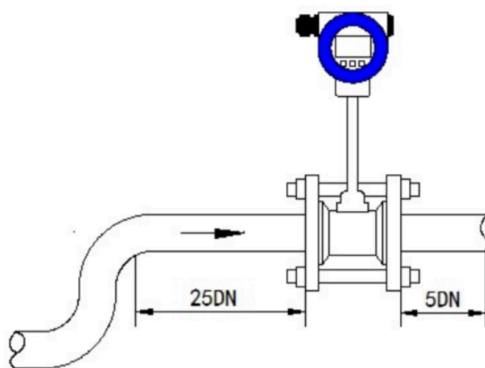
• Two 90° elbows in different planes



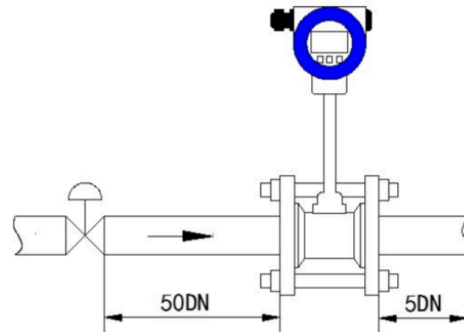
• One 90° elbow



• Concentric expansion



• Two 90° elbows in the same plane



• Regulating valve half open valve (not recommended)

**ORDER GUIDE**

FMV813	Parameter	Explanation	Order Code
A	Typs	1-Flange type 2-Threaded type 3-Quick mounting clamp type 4-Pair clamp	1
B	Caliber	DN10~1000 (See Above Table )	Please choose specific diameter needed
C	Pressure (MPA)	A ≤0.6    B ≤1    C ≤1.6    D ≤2.5 E ≤4    F ≤6    G ≤10    H ≤16	A
D	Working temperature	1-≤50°C    2-≤100°C    3-≤150°C    4-≤200°C 5-≤250°C    6- ≤300°C    7-≤350°C	1
E	Medium	A-Liquid B-Gas C-Steam	A
F	Power supply	A - 3.6V battery    B-DC24V.    C- DC12V D-AC220 with power supply    E-DC3.6V/24V dual power supply F-DC7.5V battery    G-DC15V battery    H-DC24V battery	B
G	Signal output	1-4 ~ 20mA 2-pulse 3-RS485 4 -Hart 4 ~ 20mA 5-RS485 4 ~ 20mA 6-3.6v 4 ~ 20mA 7-DC1 ~ 5V three wire system	2
H	Display	A -display B-split remote transmission display C-split display	B
I	Sensor material	1-304 sensor 2-316 sensor 3-Titanium sensor 4- Hastelloy sensor 5-Platinum level sensor 6-Tantalum sensor	1
J	Body material	A-Iron B-304 stainless steel C-316 stainless steel	B
K	Flange	1-Iron 2-304 stainless steel 3- 316 stainless steel	2
L	Explosion proof grade	A-EXIL BT4 B- EXIL CT4 C-EXIL BT6 D-EXIL CT6 E-General F-protection class IP65	A
M	With temperature and pressure compensation	1-Temperature compensation 2-Pressure compensation 3-Temperature and pressure compensation 4-Without temperature and pressure compensation	2
N	Lining material	1-Teflon lining 2-Rubber lining	1