

## Electromagnetic Flowmeter

Model: ZJX-PA-F-A1



### PRODUCT FEATURES AND APPLICATION FIELDS

#### **Description:**

In the operation of ZJX-PA-F-A1 electromagnetic flow meter, when the conductive medium flows through the electromagnetic flow meter, the left and right electrodes on the pipe wall can detect the induced electromotive force. The magnitude of this induced electromotive force is proportional to the flow rate of the conductive medium, magnetic induction intensity, and the inner diameter of the measuring pipe. The flow rate is then calculated through operation, and the overall structure is composed of a sensor and a converter

#### **Advantages:**

Wide measurement range, multiple media corresponding materials can be selected  
The ratio of maximum flow to minimum flow is higher than 20:1, and the industrial pipe diameter range can reach a maximum of 3m

Intelligent module design, high stability, reliability, and anti-interference

High demand calibration, ensuring accuracy, group pulse testing, ensuring strong anti-interference, high and low temperature aging, ensuring durability and stability in various environments

Support OEM/ODM customization

**Application:**

Petroleum and chemical industry  
 Steel, Metallurgy  
 Food and Beverage  
 Medical, pharmaceutical  
 Civil engineering, building materials  
 Sewage treatment, water conservancy irrigation  
 Farmland, electricity  
 Environmental protection equipment and construction machinery  
 Paper making and mining machinery  
 Gas pipeline network, fire protection, scientific research  
 Gas, heating, air conditioning systems  
 Textile machinery, fire protection

**Features:**

Not affected by changes in fluid density, viscosity, temperature, pressure, and conductivity  
 Dielectric conductivity  $\geq 5\mu\text{s}/\text{cm}$ , low pressure loss, no additional energy loss  
 High definition backlit LCD display, capable of displaying forward cumulative flow, reverse cumulative flow, and instantaneous flow, with Chinese and English switchable  
 With self inspection and diagnostic functions, it can determine whether the flow meter is empty or not  
 Easy installation with low requirements. The straight pipe in the front section requires a length greater than  $5D$ , and the straight pipe in the back section requires a length greater than  $3D$  ( $D$ -inner diameter of the instrument)  
 The product structure can be a single body or separate type, which can measure forward flow and reverse flow  
 Multiple installation interfaces to choose from



# PRODUCT PARAMETERS

Converter Type	Integrated type, Segregate type, Low power consumption type
Nominal Diameter	DN10~DN2000
Medium Flow Rate	0.1-10m/s
Installation Form	Flange connection, Threaded, Chuck connection
Output/Communication	0-5KHz, 4-20mA, 4-20mA+Hart, 4-20mA+RS485, 4-20mA+RS232, GPRS, Customizable
Power Supply	220VAC, 24VDC, 12VDC, 3.6V battery, Customizable
Consumption	<20W
Accuracy	±0.3%F.S, ±0.5%F.S, ±1%F.S
Nominal Pressure	DN10-DN50: ≤4.0MPa, DN65-DN200: ≤1.6MPa, DN250-DN1000: ≤1.0MPa DN1100-DN1800: 0.6MPa, Customizable
Lining Material	Polychloroprene Rubber, Polyurethane Rubber, Teflon, F46, PFA, Customizable
Electrode Materials	316LSS, Hastelloy C, Hastelloy B, Tungsten carbide, Tantalum, Titanium, Platinum, Customizable
Housing And Flange Materials	Carbon steel, Stainless steel, Customizable
Medium Temperature	-20℃~250℃
Ambient Temperature	-30℃~80℃
Grounding Method	Grounding ring, No grounding ring, Ground electrode, Customizable
Explosion Proof	Without EX-proof, Ex db IIC T6 Gb, Ex ia IIC T6 Ga
Electrical Connections	M20X1.5, 1/2NPT, Customizable
Protection Grade	IP65, IP67, IP68 (Segregate type)

## Caliber optional table:

Caliber DN(mm)	Volume flow $q_v$ ( m <sup>3</sup> /h )													
v(m/s)	0.57	0.7	0.9	1.1	1.4	1.7	2.3	2.8	3.4	4.5	5.7	6.8	9.1	
25	1.0	1.2	1.6	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	
32	1.6	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	20	25	
40	2.5	3.0	4.0	5.0	6.0	8.0	10	12	16	20	25	30	40	
50	4.0	5.0	6.0	8.0	10	12	16	20	25	30	40	50	60	
65	6.0	8.0	10	12	16	20	25	30	40	50	60	80	100	120
80	10	12	16	20	25	30	40	50	60	80	100	120	160	
100	16	20	25	30	40	50	60	80	100	120	160	200	250	
125	25	30	40	50	60	80	100	120	160	200	250	300	400	
150	40	50	60	80	100	120	160	200	250	300	400	500	600	
200	60	80	100	120	160	200	250	300	400	500	600	800	1000	
250	100	120	160	200	250	300	400	500	600	800	1000	1200		
300	160	200	250	300	400	500	600	800	1000	1200	1600	2000		
350	200	250	300	400	500	600	800	1000	1200	1600	2000	2500		
400	250	300	400	500	600	800	1000	1200	1600	2000	2500	3000		
450	300	400	500	600	800	1000	1200	1600	2000	2500	3000			

**The corrosion resistance and the use range table of the electrode material:**

Material	Corrosion Resistance
Stainless steel 316L	Application: 1. Domestic water, industrial water, raw water wells, urban pollution. 2. Weak corrosive acid, alkali, salt solution.
Hastelloy B (HB)	Application: 1. Non-oxidizing acid, such as hydrochloric acid (concentration is less than 10 percent); 2. The alkali (part), for example, sodium hydroxide (concentration is less than 50%), all concentrations of ammonium hydroxide solution; 3. Acid (part), such as phosphoric acid, and organic acid. NA: nitric acid.
Hastelloy C (HC)	Application: 1. mixed acid, for example, a mixed solution of chromic acid and sulfuric acid. 2. oxidizing salts, such as Fe <sup>3+</sup> , Cu <sup>2+</sup> , sea water. NA: hydrochloric acid.
Titanium (Ti)	Application: 1. salt (part), for example, (1) hydrogen chloride (chloride/magnesium/aluminum/ calcium / ammonia / iron, etc.); (2) the sodium, potassium, ammonium, hypochlorite, sea water. 2. The alkali (part), such as the potassium hydroxide, ammonium hydroxide, barium hydroxide alkaline solution which have a less than 50% concentration. NA: hydrochloric acid, phosphoric acid, sulfuric acid, hydrofluoric acid and other reducing acids.
Tantalum (Ta)	Application: 1 strong acid, such as hydrochloric acid (concentration is less than 40%), sulfuric acid and concentrated sulfuric acid (not including oleum). 2. chlorine dioxide, ferric chloride, hypochlorous acid, sodium cyanide and lead acetate. 3. oxidizing acids such as nitric acid (including fuming nitric acid) and the aqua regia whose temperature is below 80°C. NA: alkali, hydrofluoric acid.
Platinum (Pt)	Application: 1 almost all acids, alkalis, salt solutions (including fuming sulfuric acid, fuming nitric acid) NA: aqua regia, ammonium salt

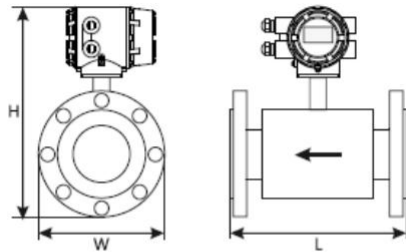
**Common lining materials application performance table:**

Inner lining material	Name	Symbol	Performance	Maximum working temperature	application caliber
Rubber	CR	CR	1. Resistance to oil, solvent, oxidation and general acid and alkali salt and other corrosive mediums. 2. It has excellent flexibility, abrasion resistance, but a poor resistance to cold.	1. 0°C - + 80°C non-strong acid, alkali, oxidizing mediums. 2. Measurable sewage and mud.	DN6-DN2200
Fluoro-plastics	PTFE	PTFE或F4	1.It is the material which has the most stable chemical properties among plastics and can bear the boiling hydrochloric acid, sulfuric acid, nitric acid and aqua regia. In addition, it can be also resistant to concentrated alkali and various organic solvents, but not to chlorine trifluoride, high temperature trifluoride itch, high velocity fluid fluorine, oxygen and ozone corrosion. 2.Poor wear resistance 3.Poor ability to resist negative pressure	1. -25°C - +120°C. 2. Concentrated acid, alkali and other strong corrosive mediums. 3. Health category medium.	DN10-DN600
	Poly FEP	FEP或F46	1. Hydrophobic and non-adhesive property. 2. the ability to resist corrosion is only after PTFE. 3. If have a higher requirement to negative resistance, we can add metal net to improve the ability to resist negative pressure. 4. Poor wear resistance.	1. -25°C - +120°C Non-strong grinding medium. 2. Health category medium.	DN6-DN200
	Teflon	PFA	Performance is close to polytetrafluoroethylene	1. -10°C - +180°C Non-strong grinding medium. 2. Health category medium.	Need to customize

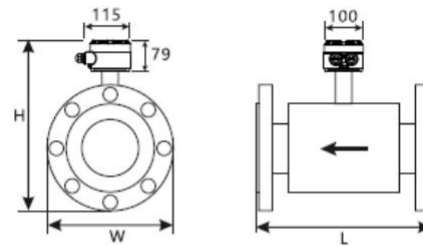
# OVERALL DIMENSIONS

The overall and mounting dimension of PMF series flowmeters

Flange type (incorporate type)



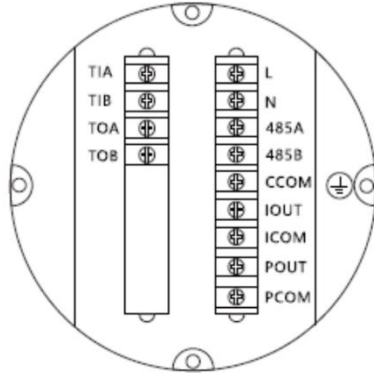
Flange (separate type)



Caliber (mm)	Size			Weight (kg)
	L	W	H	
10	200	90	290	6
15	200	95	315	6
20	200	105	315	6.5
25	200	115	315	6.8
32	200	140	315	7.1
40	200	150	315	7.6
50	200	165	320	9.9
65	200	185	350	10.6
80	200	200	365	12.3
100	250	220	380	14.7
125	250	250	410	17.9
150	300	285	440	24.6
200	350	340	495	32.7
250	450	395	560	43.5
300	500	445	600	58
350	550	505	670	78
400	600	565	720	97
450	600	615	765	110
500	600	670	820	122
600	600	780	930	161
700	700	860	1010	241
800	800	975	1110	420
900	900	1075	1210	541
1000	1000	1175	1310	668
1200	1200	1405	1540	858

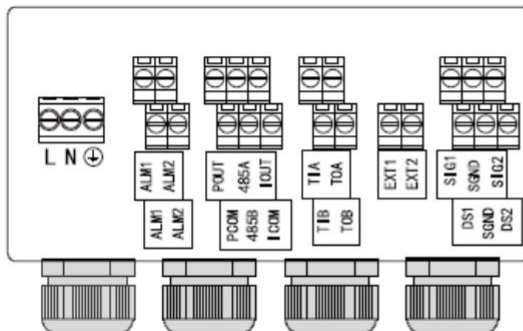
Caliber (mm)	Size			Weight (kg)
	L	W	H	
10	200	90	195	5.5
15	200	95	220	5.5
20	200	105	220	6
25	200	115	220	6.3
32	200	140	220	6.6
40	200	150	220	7.1
50	200	165	225	9.4
65	200	185	255	10.1
80	200	200	275	11.8
100	250	220	285	14.2
125	250	250	315	17.4
150	300	285	345	24.1
200	350	340	400	32.2
250	450	395	465	43
300	500	445	505	58
350	550	505	575	78
400	600	565	625	97
450	450	615	670	112
500	500	670	725	122
600	600	780	835	161
700	700	860	915	241
800	800	975	1015	420
900	900	1075	1115	541
1000	1000	1175	1215	668
1200	1200	1405	1445	858

# PRODUCT CONNECTION MODE



### Incorporate type

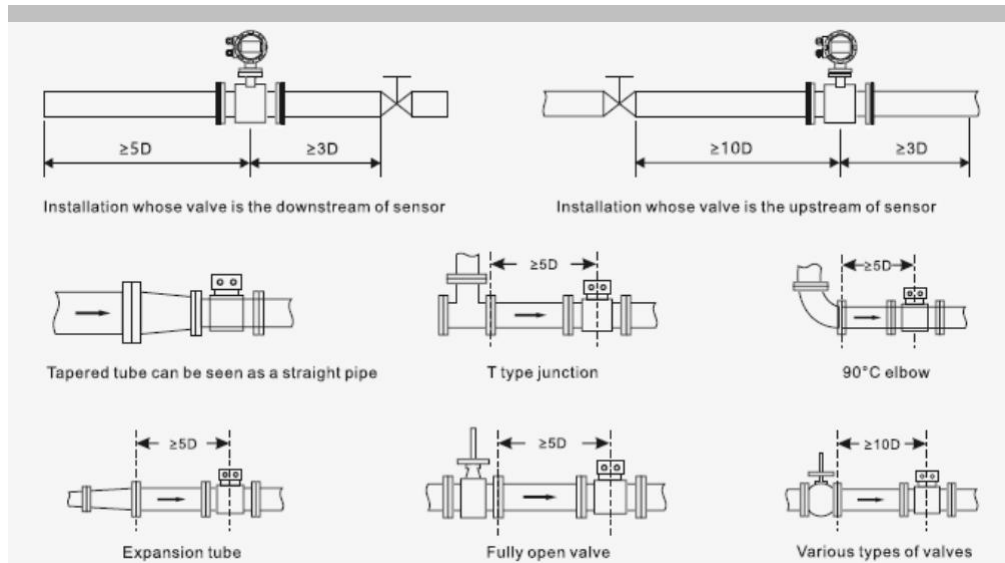
L , N : Power  
 485A , 485B : 485 serial communication  
 POUT , PCOM : Pulse / Frequency / Alarm output  
 IOUT , ICOM : 4-20mA output  
 TIA , TIB : Temperature of water supply  
 TOA , TOB : Return water temperature



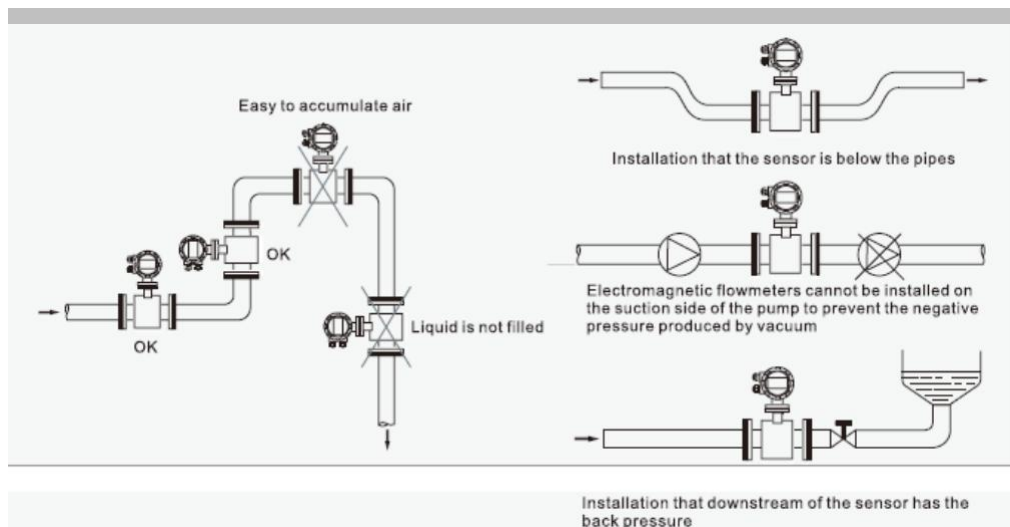
### Separate body-type

L , N : Power  
 ALM1 , ALM2 : Alarm output  
 POUT , PCOM : Pulse / Frequency output  
 IOUT , ICOM : 4-20mA output  
 485A , 485B : 485 serial communication  
 TIA , TIB : Temperature of water supply  
 TOA , TOB : Return water temperature  
 EXT1 , EXT2 : Excitation signal  
 SIG1 , SIG2 : Electrode signal  
 DS1 , DS2 : Electrode shield

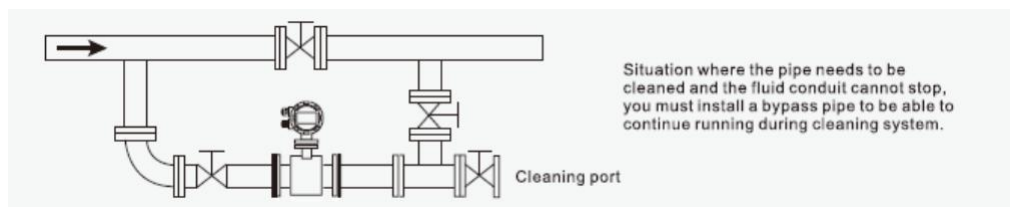
### Installation Straight pipe length requirements:



### Recommended installation location:



### Easy to clean pipeline connections:



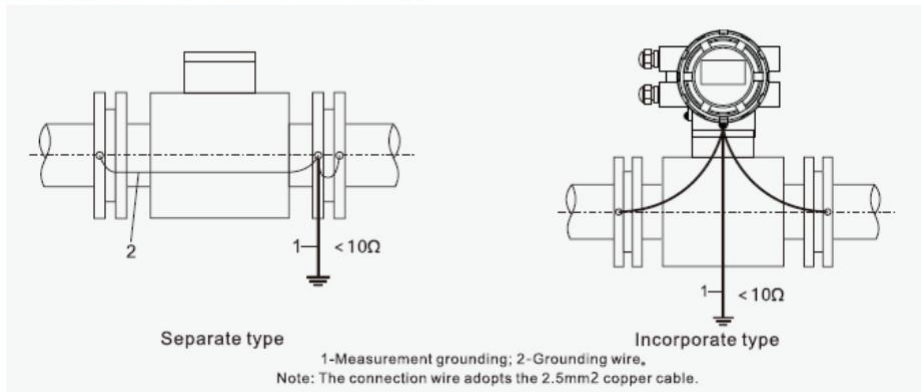
## Grounding:

Electromagnetic Flowmeter sensor should be well grounded, the measuring accuracy of flowmeter

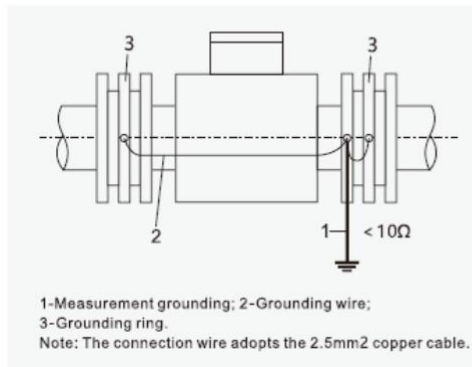
Depends on the grounding effect in a considerable extent.

Sensor grounding at different installation situation

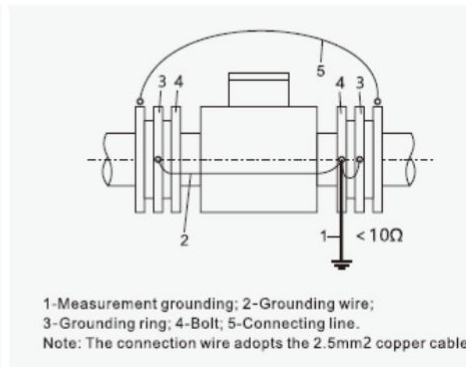
Grounding that sensor mounted on metal pipe.



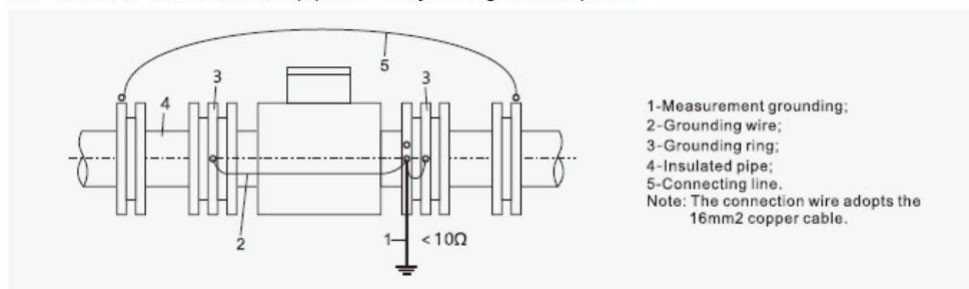
Grounding that the sensor mounted on the insulating pipes.



3. Grounding that the sensor installed on the cathodic protection pipe.



The sensor is installed in the pipeline stray strong current place





# PRODUCT SELECTION TABLE

Code		Electromagnetic Flowmeter													
ZJX-PA-F-A1		Electromagnetic Flowmeter													
		Code Nominal Diameter													
		Fill In The Actual Demand DN10~DN2000													
		Code Converter Type													
		I Integrated type													
		S Segregate type													
		B Low power consumption type													
		Code Installation Form													
		F Flange connection													
		T Threaded													
		C Chuck connection													
		Code Output/Communication													
		S1 0-5KHz													
		S2 4-20mA													
		S3 4-20mA+Hart													
		S4 4-20mA+RS485													
		S5 4-20mA+RS232													
		S6 GPRS													
		S7 Customizable													
		Code Power Supply													
		P1 220VAC													
		P2 24VDC													
		P3 12VDC													
		P4 3.6V battery													
		P5 Customizable													
		Code Accuracy													
		A1 ±0.3%F.S													
		A2 ±0.5%F.S													
		A3 ±1%F.S													
		Code Nominal Pressure													
		D1 DN10-DN50: ≤4.0MPa													
		D2 DN65-DN200: ≤1.6MPa													
		D3 DN250-DN1000: ≤1.0MPa													
		D4 DN1100-DN1800: 0.6MPa													
		D5 Customizable													
		Code Lining Material													
		L1 Polychloroprene Rubber													
		L2 Polyurethane Rubber													
		L3 Teflon													
		L4 F46													
		L5 PFA													
		L6 Customizable													
		Code Electrode Materials													
		M1 316LSS													
		M2 Hastelloy C													
		M3 Hastelloy B													
		M4 Tungsten carbide													
		M5 Tantalum													
		M6 Titanium													
		M7 Platinum													
		M8 Customizable													
		Code Housing And Flange Materials													
		C Carbon steel													
		S Stainless steel													
		A Customizable													
		Code Grounding Method													
		G0 No grounding ring													
		G1 Grounding ring													
		G2 Ground electrode													
		G3 Customizable													
		Code Explosion Proof													
		E0 Without EX-proof													
		E1 Ex db IIC T6 Gb													
		E2 Ex ia IIC T6 Ga													
		Code Electrical Connections													
		C1 M20X1.5													
		C2 1/2NPT													
		C3 Customizable													
		Code Protection Grade													
		L IP65													
		C IP67													
		H IP68 (Segregate type)													
ZJX-PA-F-A1	DN50	I	F	S3	P2	A2	D2	L5	M1	C	G0	E0	C1	C	Model No.Example

