



Principle characteristics

FM230 electromagnetic flowmeter is a main flow meter, composed of two parts of the sensor and the converter, based on Faraday's law of electromagnetic induction work, used to measure conductive liquid or two-phase medium, requiring its conductivity should generally be greater than $25\mu\text{S/cm}$ (tap water original conductivity of about $25\mu\text{S/cm}$). It can be used to measure various acids, alkalis, salt solutions, pulp, pulp and other media, but the media can not contain more ferromagnetic substances and a large number of bubbles.

Product application

Widely used in petroleum, chemical industry, metallurgy, textile, paper, environmental protection, food and other industrial departments and municipal management, water conservancy construction and other fields of fluid measurement.

- The measurement is not affected by changes in fluid density, viscosity, temperature, pressure and conductivity
- There are no obstructing parts in the measuring tube, no pressure loss, and low requirements in the straight pipe section
- The sensor can be equipped with a ground electrode to achieve good grounding of the instrument
- With positive/reverse two-way flow measurement function
- The LCD backlight display allows easy reading in direct sunlight or in a dark room
- Converter displays volume flow percentage, actual flow and cumulative flow at the same time
- Mounted on the pipe with a standard (type) $\leq 90^\circ$ rotating display improves the visibility of a single type flowmeter
- The converter has the functions of self-diagnosis alarm output, empty load detection alarm output, flow upper and lower limit alarm output, two-stage flow value output

Technical parameter

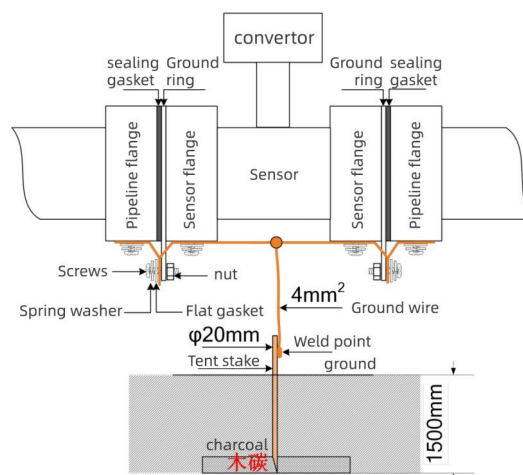
◇ Measuring caliber:	DN10mm-DN3000mm	◇ Power supply mode:	220VAC/24VDC
◇ Measuring medium:	Conducting liquid, slurry	◇ Running power consumption:	$\leq 15\text{VA}$
◇ Dielectric conductivity:	Conventional type $\geq 25\mu\text{S/cm}$ Low conductivity type: $\geq 5\mu\text{S/cm}$	◇ Lining material:	Polyfluoroethylene propylene (FEP), polyurethane rubber
◇ Measuring accuracy:	$\pm 0.5\%$ of the indicated value, $\pm 0.3\% \pm 0.2\%$ of the optional indicated value	◇ Shell material:	Carbon steel (standard), stainless steel (non-standard custom)
◇ Measuring range:	150:1 Flow rate setting: $0.1 \sim < 15\text{m/s}$	◇ Medium temperature:	$-40^\circ\text{C} \sim +180^\circ\text{C}$, Limited by the temperature resistance characteristics of the lining material
◇ Structure form:	One body type, divided body type	◇ Ambient temperature:	$-25^\circ\text{C} \sim +60^\circ\text{C}$
◇ Electrode material:	Stainless steel 316L, platinum-iridium, Hastelloy, tantalum, titanium	◇ Environmental humidity:	5~100%RH (relative humidity)
◇ Electrical connection:	M20x1.5 (standard nylon waterproof connector, optional explosion-proof metal connector)	◇ Shell protection grade:	Integrated (IP65), Split (IP65/IP68)

Electrical connection

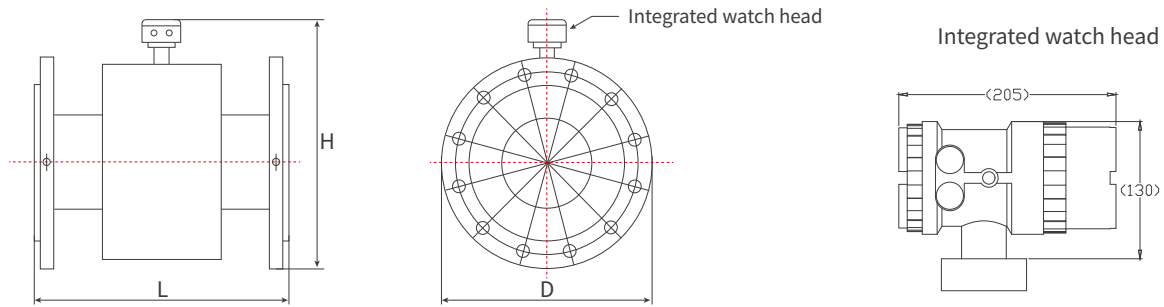
DOUT	+	⊗
POUT	+	⊗
4-20mA	+	⊗
RS485	+	⊗
	+	⊗
220VAC /24VDC	⊕	⊗
	⊕	⊗

identification	implication
RS485+	Communication (485-A)
RS485-	Communication (RS485-B)
POUT+	Pulse/frequency output is positive
POUT-	Pulse/frequency output area
4-20mA+	Current output positive
4-20mA-	Where the current is delivered
DOUT+	Alarm output positive
DOUT-	Alarm delivery point
N	220VAC(24VDC) power input
L	220VAC(24VDC) power input

Grounding mode



Size drawing (mm)



DN6mm~DN3000mm Flange type sensor outline diagram

Nominal diameter (mm)	Nominal pressure (M Pa)	Dimensions of the shape(mm)			Reference weight (kg)
		Instrument length (including the measuring range)	D	H	
6	4.0	200	90	220	6
10		200	90	220	6
15		200	95	220	8
20		200	105	220	10
25		200	115	223	12
32		200	140	240	13
40		200	150	250	14
50		200	165	263	15
65	1.6	200	185	283	18
80		200	200	290	20
100		250	220	318	25
125		250	250	350	28
150		300	285	380	30
200		350	340	430	50
250		450	405	495	70
300	1	500	460	547	95
350		550	520	602	120
400		600	580	665	140
450		600	640	720	160
500		600	715	783	200
600		600	840	897	280
700		700	895	982	350
800		800	1015	1092	400
900		900	1115	1192	480
1000		1000	1230	1299	550
1200	0.6	1200	1405	1488	660
1400		1400	1630	1700	750
1600		1600	1830	1924	850
1800		1800	2045	2134	980
2000		2000	2265	2344	1200
2200		2200	2475	2549	1600
2400		2400	2685	2754	2000
2600		2600	2905	2964	2400
2800		2800	2905	3169	2700
3000		3000	3315	3369	2900

Flange size drawing (mm)

Connection flange and mounting dimensions

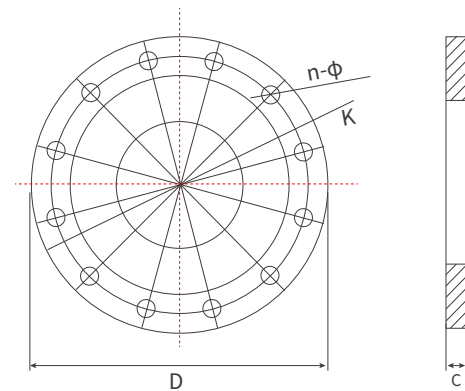
Connection flange implementation standard:GB/T20592-2009

4.0MPa(DN6mm~DN50mm)

1.6MPa(DN65mm~DN250mm)

1.0MPa(DN300mm~DN1000mm)

0.6MPa(DN1200mm~DN3000mm)



Nominal pressure (M Pa)	Nominal diameter (mm)	D	K	Diameter(φ)	n	C
4.0	6	90	60	14	4	14
	10	90	60	14	4	14
	15	95	65	14	4	16
	20	105	75	14	4	16
	25	115	85	14	4	16
	32	140	100	18	4	18
	40	150	110	18	4	18
	50	165	125	18	4	20
1.6	65	185	145	18	8	24
	80	200	160	18	8	24
	100	220	180	18	8	26
	125	250	210	18	8	28
	150	285	240	23	8	28
	200	340	295	23	12	30
	250	405	355	25	12	32
	300	460	400	23	12	28
1	350	520	460	23	16	28
	400	580	515	25	16	30
	450	640	565	25	20	30
	500	715	620	25	20	32
	600	840	725	30	20	36
	700	895	840	30	24	36
	800	1015	950	34	24	38
	900	1115	1050	34	28	42
	1000	1230	1160	34	28	44
	1200	1405	1340	33	32	32
0.6	1400	1630	1560	36	36	32
	1600	1830	1760	36	40	34
	1800	2045	1970	39	44	36
	2000	2265	2180	42	48	38
	2200	2475	2390	42	52	42
	2400	2685	2600	42	56	44
	2600	2905	2810	48	60	46
	2800	2905	3020	48	64	48
	3000	3315	3220	48	68	50

Unit :m³/h

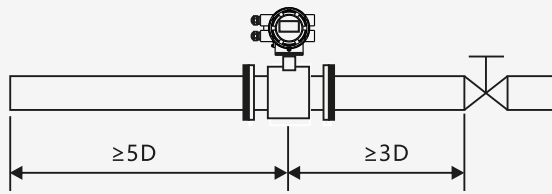
accuracy flow velocity caliber(DN)	1.0 level	0.5 level			1.0 level
	0.3m/s	0.6m/s	1m/s	6m/s	10m/s
10	0.085	0.17	0.28	1.7	2.8
15	0.19	0.38	0.64	3.8	6.4
20	0.34	0.68	1.13	6.8	11.3
25	0.53	1.06	1.76	10.6	17.6
32	0.87	1.74	2.9	17.4	29
40	1.36	2.71	4.52	27.1	45.2
50	2.12	4.24	7.07	42.4	70.7
65	3.58	7.17	11.95	71.7	119.5
80	5.43	10.86	18.1	108.6	181
100	8.48	16.96	28.27	169.6	282.7
125	13.25	26.5	44.18	265	441.8
150	19.09	38.17	63.62	381.7	636.2
200	33.93	67.86	113.1	678.6	1131
250	53.01	106.03	176.71	1060.3	1767.1
300	76.34	152.68	254.47	1526.8	2544.7
350	103.9	207.82	346.36	2078.2	3463.6
400	135.72	271.43	452.39	2714.3	4523.9
450	171.77	343.53	572.56	3435.3	5725.6
500	212.06	424.12	706.86	4241.2	7068.6

Selection list

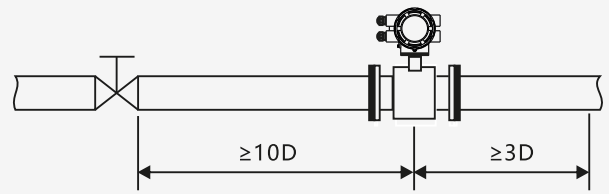
FM 230	050	S	CR	L	040	L	0	0	AC	5	-	-	-	-	expatiate
FM 230															FM 230 series electromagnetic flow sensor
	050														DN10~DN1000
		S													Electrode material: stainless steel
		HB													Electrode material: Hastelloy B
		HC													Electrode material: Hastelloy C
		Pt													Electrode material: platinum
		Ti													Electrode material: titanium
		Ta													Electrode material: tantalum
		WC													Electrode material: Tungsten carbide
			CR												Lining material: Neoprene rubber (CR)
			PU												Lining material: Polyurethane rubber (PU)
			PT												Lining material: PTFE
			FE												Lining material: polyperfluorinated ethylene propylene
				L											Shell material: carbon steel
				S											Case material: stainless steel
					040										4.0M pa Applicable caliber: DN10-50
					016										1.6M pa Applicable caliber: DN10-150
					010										1.0M pa Applicable caliber: DN65-1000
					006										0.6M pa Applicable diameter: DN1100-2000
					0025										0.25M pa Applicable caliber: DN2200
						L									Operating temperature: $\leq 70^{\circ}\text{C}$
						H									Operating temperature: $\leq 120^{\circ}\text{C}$
								0							no
								1							RS485 communication interface
									AC						220VAC power supply
									DC						24VDC power supply
										5					Protection class: IP65
										8					Protection level: IP68
											-				Converter type: all-in-one
											F				Converter type: Split type
												-			Install matching flanges: None
												1			Install matching flanges: Yes
													-		no
													T		Standard ground ring
														-	Conventional type: dielectric conductivity $\geq 25\mu\text{s}/\text{cm}$
														D	Low conductivity type: dielectric conductivity $\geq 5\mu\text{s}/\text{cm}$

installation

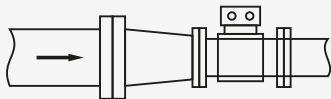
Straight pipe length requirements



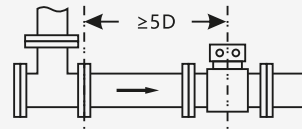
Valve is installed downstream of the sensor



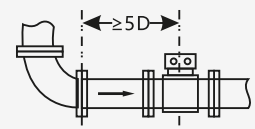
Valve is installed upstream of the sensor



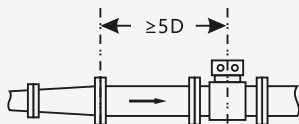
A tapered tube can be considered a straight tube



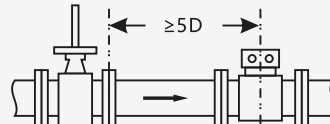
Tee joint



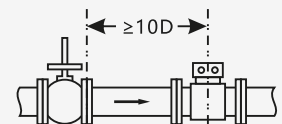
90°elbow



Expansion tube

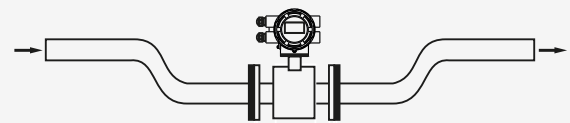
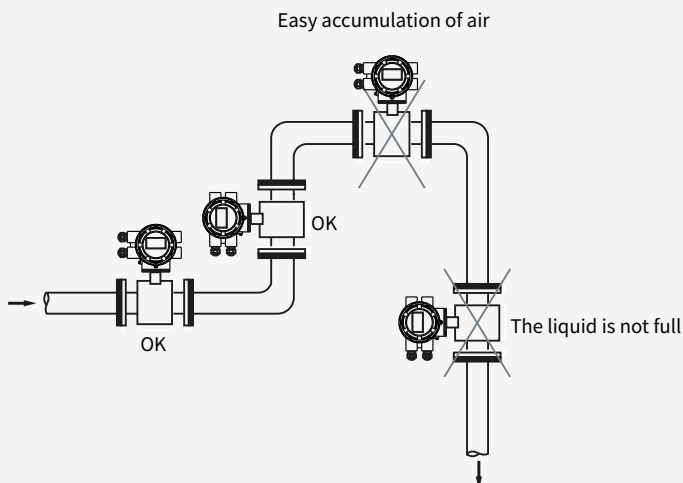


Full open gate valve

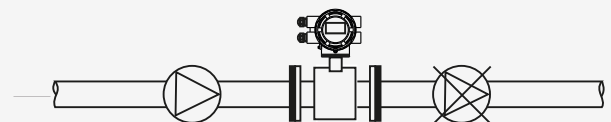


Various Kinds of Valves

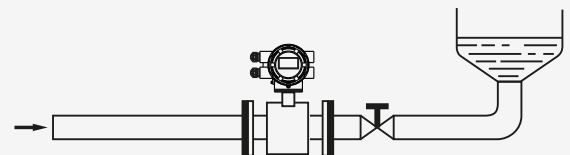
Recommended installation location



The sensor is lower than the installation of the pipe

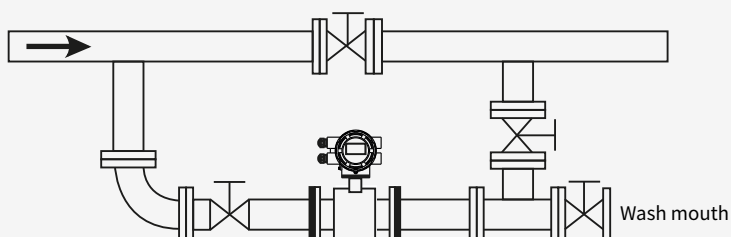


No electromagnetic flowmeter can be installed on the suction side of the pump to prevent negative pressure generated by vacuum



Downstream of the sensor there is back pressure installation

Easy to clean pipe connections



If the pipeline to be cleaned cannot be stopped, the side channel must be installed. To keep the system running while the equipment is being cleaned.