LDG Electromagnetic Flowmeter

Overview

LDG series of intelligent electromagnetic flowmeter is made according to the law of electromagnetic induction, which is used to measure the volume flow of conducting liquid in the pipe, such as water, sewage, slurry, ore pulp, acid, alkali, salt liquids and food slurry, etc. It is widely used in the industries of petrochemical, mining, coal and water conservancy which solve the drainage, sewage treatment problems.

Operating Principle

The electromagnetic flowmeter is based on the theory of Faraday's law of electromagnetic induction.

When a conductor cuts magnetic line of force, it will generate EMF (Electromotive Force). According to this principle, the volume of flowing conductive fluid in pipe can be measured, flowing direction of conductive fluid is perpendicular to the direction of electromagnetic field, an alternating magnetic field is applied in a direction which is perpendicular to the conduit, and install a pair of electrodes on both sides of the conduit’s inner surface which has insulated lining. When the conductive liquid goes through the conduit, both electrodes generate EMF because magnetic line of force is being cut. EMF is proportional to the flow, finally, the flow can be exported.

Features

1. Measurement is not influenced by the changes of liquid density, viscosity, pressure and conductivity.

2. No active and choked flow parts, no pressure loss, no blocking, measurable for the liquid with fiber, solid particles and suspended solids.

3. Reaction of the instrument is sensitive. The measuring range, the flow rate is 0.3-15m/s, conductive liquids of conductivity≥5μs/cm all can be measured, and measuring range can be selected arbitrarily.

4. The instrument uses a low-frequency three-state square-wave excitation technology, advanced small-signal processing technology and software technology, so it has the strong anti-interference, high precision, stable and reliable.

5. The instrument is not affected by the flow direction of liquid, can measure as both forward

and reverse installation, and easy to install, less demanding for the straight pipeline.

6. Corrosion resistance and abrasion resistance of electrode and the lining material of electromagnetic flow meter are excellent, with a long service life. According to the special condition requirements of users, we can produce electromagnetic flowmeters, for example, electromagnetic flowmeter of submerged type.

7. Impact resistance and vibration resistance of the instrument are excellent.

8. Not measurable for gas and non-conducting liquids.

Main Technical Parameters

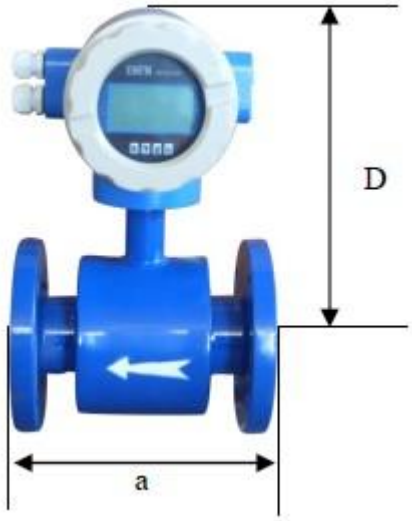
Flow Measurement Range and Turndown Ratio	Display turndown ratio 1: 150, Accuracy turndown ratio Grade 0.3 1: 4, Grade 0.5 1: 10, Grade 1.0 1: 20
Velocity range	0.3~15m/s
Medium conductivity	≥5μs/cm
Measurement Accuracy	Grade 0.3, Grade 0.5, Grade 1.0
Medium Temperature	-20℃~60℃, -20℃~90℃, -20℃~100℃, -20℃~180℃
Pressure	1.6, 2.5, 6.4, 16, 26, 42Mpa
Operating Environment	Temperature -20℃~+50℃ Humidity≤85%, Air pressure 86kpa~106kpa
Output Signal	Frequency output 0-5KHz Voltage output 1-5V Current output 4~20mA, RS-485 serial interface or RS232 interface, Mudbus protocol Hart protocol
Data storage time for outage	10 years
Power supply	①Outer supply 220VAC±15%; ②Outer supply 24VDC±5% (Optional) ③Lithium battery power supply
Power Dissipation	≤15w (Outer power supply)
Protection Level	IP67, IP68 (Only adapt to the separated type)
Lining Material	Polyurethane rubber, Chloroprene rubber, Polytetrafluoroethylene, F46 and so on.
Electrode Material	316L, Hastelloy HB, Hastelloy HC, Titanium, Platinum and so on.
Special Electrode Material	For example: Titanium, Tantalum, Platinum and other rare metal materials
Installing Type	Integrated type, Separated type (wall mounting type)
Explosion-proof Level	ExmdibIIBT4

Flow Range

Inner diameter (mm)	10	15	20	25	32	40	50	65
Qmin (m3/h)	0.0283	0.0636	0.12	0.176	0.29	0.452	0.7	1.19
Qmax (m3/h)	4.24	9.54	16.96	26.5	43.42	67.85	106.0	179.0

Inner diameter (mm)	80	100	125	150	200	250	300	350
Qmin (m3/h) Qmax (m3/h)	1.8 271.0	2.82 424.0	4.41 662.0	6.36 954.0	11.3 1690	17.6 265.0	25.4 381.0	34.6 5190
Inner diameter (mm)	400	450	500	550	600	700	800	900
Qmin (m3/h) Qmax (m3/h)	45.2 6780	57.2 8570	77.6 10600	85.5 12800	101.0 15200	138.0 20700	180.0 27100	229.0 34300
Inner diameter (mm)	1000	1100	1200	1400	1600	1800	2000	2200
Qmin (m3/h) Qmax (m3/h)	282.0 42400	342.0 51300	407 61000	554.1 83121	732.7 108566	916.0 137404	1131.0 169635	1368.4 205258

Installing Dimension



DN (mm)	10	15	20	25	32	40	50	65
a	230	230	230	230	230	230	230	230
D	300	300	300	300	350	350	350	350
DN (mm)	80	100	125	150	200	250	300	350
a	230	230	280	280	310	360	460	460
D	380	380	400	400	450	450	480	480
DN (mm)	400	450	500	600	700	800	900	1000
a	460-500	460-550	600-550	600	700	800	900	1000
D	600	600	650	650	700	750	800	850
DN (mm)	1200	1400	1600	1800	2000	2200		
a	1200	1400	1600	1800	2000	2200		
D	1020	1150	1250	1350	1500	1650		

Model	D	A	B	P	C	E	G	H	I	F	K	Illustration
	Inside Nominal Diameter	Medium Temperature	Accuracy	Nominal Pressure	Pipe Connection Way	Structure Mode	Output Signal	Power Supply	Explosion-proof Level	Lining	Electrode Material	
LDG												Electromagnetic flowmeter
	D10~2500											10~2500
		A1										General type
		A2										High temperature type
		A3										Super high temperature type
			B1									Grade 0.3
			B2									Grade0.5
			B3									Grade1.0
				P1								0.6
				P2								1.0
				P3								1.6
				P4			F					6.3
				P5			I					10
				P6			R					16
				P7			H					26
				P8				A				42
					C1			B				Flange form
					C2							Flange clamp form
						E1						Integrated type
						E2						Separated type
							G1					4-20mA
							G2					Impulse or equivalent
							G3					RS485 RS232Mudbus
							G4					Hart protocol output
								H1				24VDC
								H2				220VAC
								H3				Lithium battery-powered
									I1			Ordinary type
									I2			Explosion-proof type
										F1		Polyurethane rubber
										F2		Chloroprene rubber
										F3		Polytetrafluoroethylene
										F4		F46
											K1	316L
											K2	Hastelloy HB
											K3	Hastelloy HC
											K4	Special materials