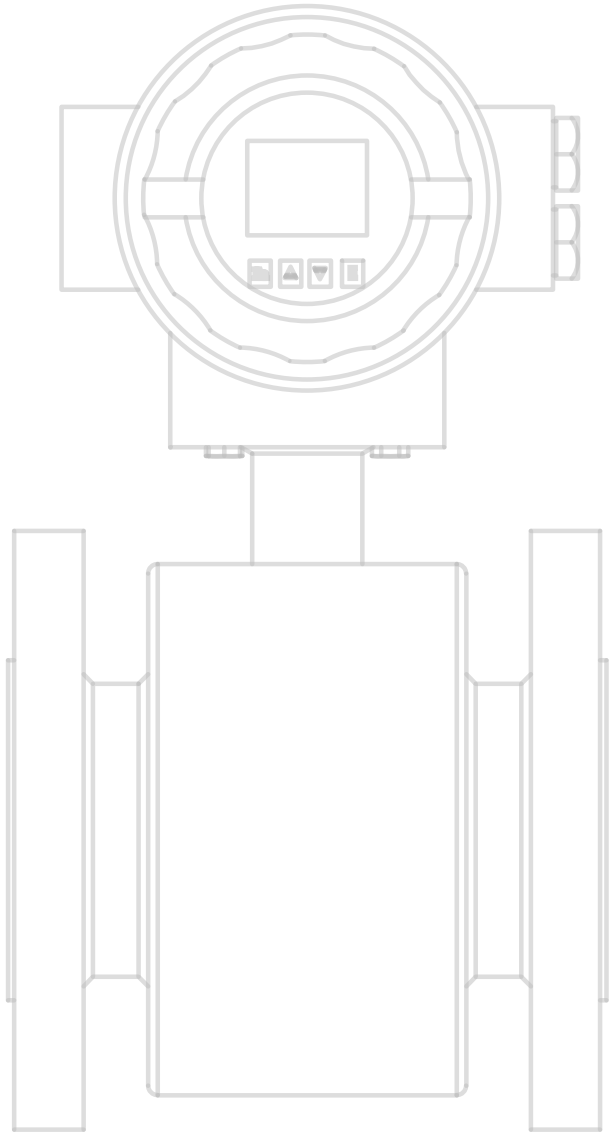
Magnetic Flow Meter Brochure

Slurry Type

Tianjin Sure Instrument Co., Ltd



Version:SURE-LDG-HYV2401

THE COMPANY

TIANJIN SURE INSTRUMENT is engaged into the design, manufacture and service of measurement analysis instruments field, With 22 years development, we have become one of the outstanding enterprises in this field in China.

At present, Sure Instrument is a professional and responsible flow meter enterprise with 353 staffs, 73000m² standardized workshops and machining centers, high-precision numerical control machines automated assembling line as well as other equipments.

With excellent staffs, advanced equipments, strict quality control system and good services, our products are widely sold to more than 97 countries and gain good reputation from customers. Our aim is to provide a metering solution that helps our customers achieve operational improvement through their production capability, usually, in the form of reduced energy usage, improved product quality, lower emissions and greater production throughout, Reducing emissions, carbon footprint, and your company's impact on the environment is our goal. Not only will have a strong social and environmental impact but also a positive economic impact today and future.





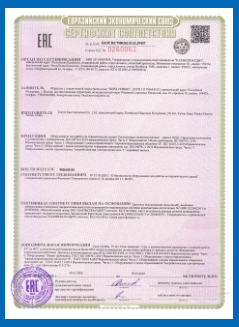
ISO14001
Certificate


ISO45001
Certificate


ISO9001
Certificate


ISO50001
Certificate

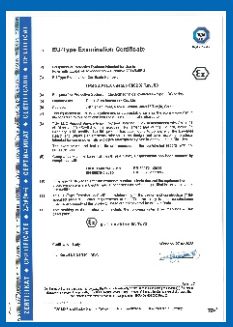
SIL
Certificate


CU-TR 012 COC
Certificate

Intellectual Property
Management System Certificate

Credit Rating
Certificate

PED
Certificate


ATEX
Certificate

HART
Certification

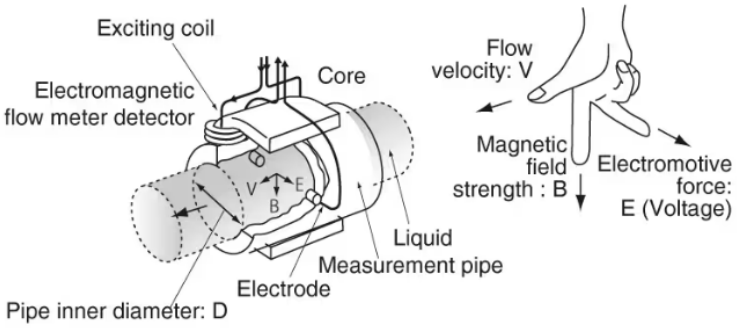
CE
Certification

Electromagnetic Flow Meter
LDG Series Slurry Type

Working Principle

Electromagnetic flow meters detect flow by using Faraday's Law of induction.

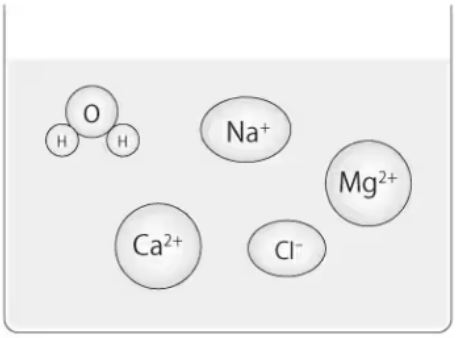
Inside an electromagnetic flow meter, there is an electromagnetic coil that generates a magnetic field, and electrodes that capture electromotive force(voltage). Due to this, although it may appear as if there is nothing inside the flow pipe of an electromagnetic flow meter, flow can be measured. Electromagnetic flow meter is flexible and universally applicable flow measurement systems. It is a velocity flow meter which does not have any moving parts and is ideal for conductive fluid.



Importance of Conductivity

Electrical conductivity is a physical quantity that measures the ability of a substance to conduct electricity, determining the ease with which charge can flow through the material. In electromagnetic flow meters, the conductivity of the fluid being measured must be high enough to generate a sufficient induced electromotive force for flow measurement.

Electromagnetic Flow meter Measurement: In electromagnetic flow meters, conductivity is a key factor that determines whether the flow meter can work properly. Only conductive liquids can generate induced electromotive force in a magnetic field, thus being measurable by the electromagnetic flow meter. Therefore, the level of conductivity directly affects the selection of the flow meter and the accuracy of the measurement results.



Conductivity of Common Medium

Medium	Conductive	Not Conductive
Acetic acid	√	
Acetone		×
Alcohol		×
Beer	√	
Blood	√	
Body Lotion	√	
Cleaning Agents	√	
Coffee Extract	√	
Corn Syrup		×
Fruit Juice	√	
Glycol/ Water Mixture	√	
Hydrochloric Acid	√	
Hydrogen Peroxide		×
Latex Paint	√	
Nitric Acid	√	
Oils		×
Potassium Hydroxide	√	
Salt Water	√	
Shampoo	√	
Sugar (Pure)		×
Sugar (Diluted with water)	√	
Sulfuric Acid (Dilute)	√	
Water (Deionized)		×
Water	√	
Water-based Coolant	√	

Features

- 70%-80% mud content can be measured, such as coal-water slurry
- 50% pulp content can be measured for most of pulp or mining applications etc.
- High accuracy and wide flow rate range measurement
- 99.999% pure copper for coil
- No mechanically moving parts
- IP68 proof, Maximum 3 meter immersion in water
- Wide choice of materials for housing and flanges including SS304 and SS316
- Advanced wire-winding technology, No drift zero point
- Robust, fully welded and potted construction
- In house wet calibration for all diameters (up to DN3000)
- Three electrodes
- ≥3mm thickness PTFE liner, durable service life

Applications

- Mining and Mineral Processing: In mineral processing plants, slurry-type electromagnetic flow meters are used to monitor the flow of slurry (a mixture of mineral particles and water) to ensure material balance. In the thickening process, they are used to monitor the flow of feed and discharge from thickeners to help adjust the thickening process. In flotation processes, they accurately measure the addition of chemical reagents to ensure flotation effectiveness. In flocculant addition processes, they monitor the flow of flocculants to ensure flocculation effects.

- Water Treatment and Recycling: In wastewater treatment systems generated during mining, slurry-type electromagnetic flowmeters are used to monitor the flow of the wastewater treatment system to ensure treatment effectiveness. In recirculating water systems, they monitor the flow of recirculating water to ensure stable operation of the system.

- Mine Drainage: In underground mining, they are used to monitor the flow of water drained by pumping stations to ensure mine safety.

- Ore Washing Process: In the ore washing and sorting process, they are used to monitor the flow of water used for washing to ensure washing effectiveness.

- Chemical Industry: Slurry-type electromagnetic flow meters are suitable for various acid, base, and salt solutions, clear water, seawater, and liquids in the food sector. They are widely used in industrial production control, energy metering, environmental protection, water resources, and other fields.

- Water Treatment Industry: In the water treatment field, electromagnetic flowm eters are widely used in the processes of raw water, sewage treatment, and reclaimed water reuse, providing data support for the optimized operation of the water treatment system.

- Water Conservancy Industry: In the water conservancy industry, slurry-type electromagnetic flow meters are commonly used to measure the flow of water in rivers, lakes, seas, and other water bodies.

Slurry Type Electromagnetic Flow Meter Product Series

	
Compact Type	Remote Type

*Notice: Colors are changed without inform.

Technical Data

*Slurry Type Magnetic Flow Meter

Diameter	**PTFE:** DN2.5-DN1000
	Rubber: DN50-DN3000
Flow Direction	Bi-direction
Repeatability Error	±0.1%
Accuracy	±0.5% of reading; ±0.2% of reading
Medium Temperature	**Rubber liner:** -20...+60°C
	PTFE liner: -20...+120°C
	PFA: -20...+180°C
	Ceramic: -20...+180 °C
Velocity	0.3-10m/s
Ambient Temperature	-20...+60°C
Relative Humidity	5%~95%
Power Consumption	<20W
Protection	IP 65; IP 68 (Only for remote type)
Electrical Connection	M20*1.5 as default: 1/2"NPT optional

Model Selection

Model	Suffix Code												Description
LDG-	❶	❷	❸	❹	❺	❻	-❼	❽	❾	❿	⓫	⓬	Electromagnetic Flow Meter
Type	HY												Slurry type
Diameter		XXX											Stand for diameter 0006: DN6; 0015: DN15 0100: DN100; 2200: DN2200
Structure			S										Compact Type with local display
			L										Remote Type; 10 meters cable default
Electrode Material				M									SS316L
				T									Titanium
				D									Tantalum
				H									Hastelloy C
				P									Platinum-Iridium
				W									Tungsten Carbide
Signal Output					0								No Output
					1								4-20mA / Pulse
Liner Material						X							Rubber
						F							PTFE
						A							PFA
						P							Polyurethane
Power Supply							-0						110-240V AC
							-1						24V DC (20-36V DC)
Communication								0					No Communication
								1					Modbus RS485
								2					HART
								3					GPRS
								4					Others (4G, Profibus DP, Profibus PA, BACnet / IP, GSM, etc)
Sensor Grounding									1				Grounding Ring
									2				Grounding Electrode
Connection										DXX			D16:DIN PN16 Flange ; D25: DIN PN25 Flange...
										AXX			A15: ANSI150# Flange; A30: ANSI 300# Flange...
										JXX			J10: JIS 10K Flange; J20: JIS 20K Flange...
										XXX			On request
Body Material											CS		Carbon Steel
											S4		SS304
											S6		SS316
Accuracy												05	± 0.5%
												02	± 0.2%

Electromagnetic Flow Meter Selection Guide

LDG – HY –50 – S – M – 0 – X – 0 – 0 – 1 – D16 – CS – 05

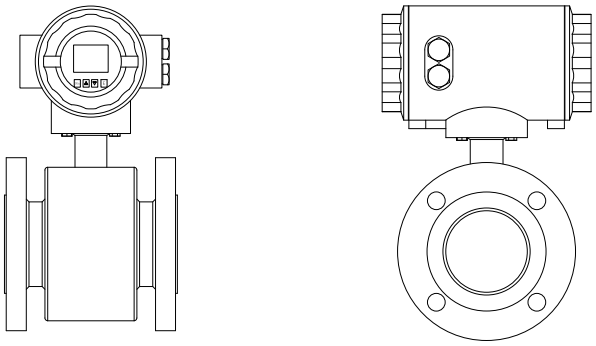
LDG: Electromagnetic Flow Meter
HY: Slurry Type
50: DN50
S: Compact Type with local display
M: SS316L
0: 110-240V AC
X: Rubber
0: 110-240V AC
0: No Communication
1: Grounding Ring
D16: DIN PN16 Flange
CS: Carbon Steel
05: ±0.5%

Flow Range

Diameter		Flow Rate (m^3/h)		
		V=0.3m/s	V=6m/s	V=10m/s
mm	Inch	Min	Calibrated	Max
2.5	1/10"	0.0053	0.106	0.177
4	1/8"	0.014	0.271	0.452
6	1/4"	0.03	0.6	1
10	3/8"	0.1	1.7	3
15	1/2"	0.2	4	6
20	3/4"	0.3	7	11
25	1"	0.5	11	18
32	1-1/4"	0.9	17	29
40	1-1/2"	1	27	45
50	2"	2	42	71
65	2-1/2"	4	72	120
80	3"	5	109	181
100	4"	8	170	283
125	5"	13	265	442
150	6"	20	382	636
200	8"	34	679	1131
250	10"	53	1060	1767
300	12"	76	1527	2545
350	14"	104	2078	3465
400	16"	136	2714	4524
450	18"	171	3435	5726
500	20"	212	4241	7069
600	24"	305	6107	10179
700	28"	415	8310	13850
800	32"	542	10860	18100
900	36"	662	13740	22900
1000	40"	848	16962	28270

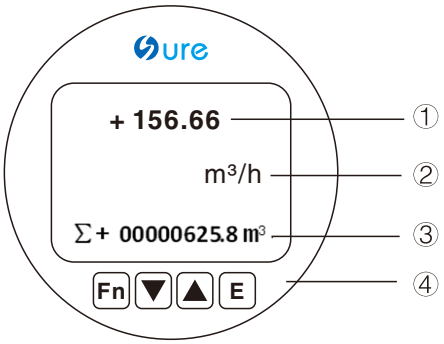
Note: *Our standard flow rate is refer to the velosity of 0.3m/s-6m/s, the 10m/s is customized.

Technical Drawings



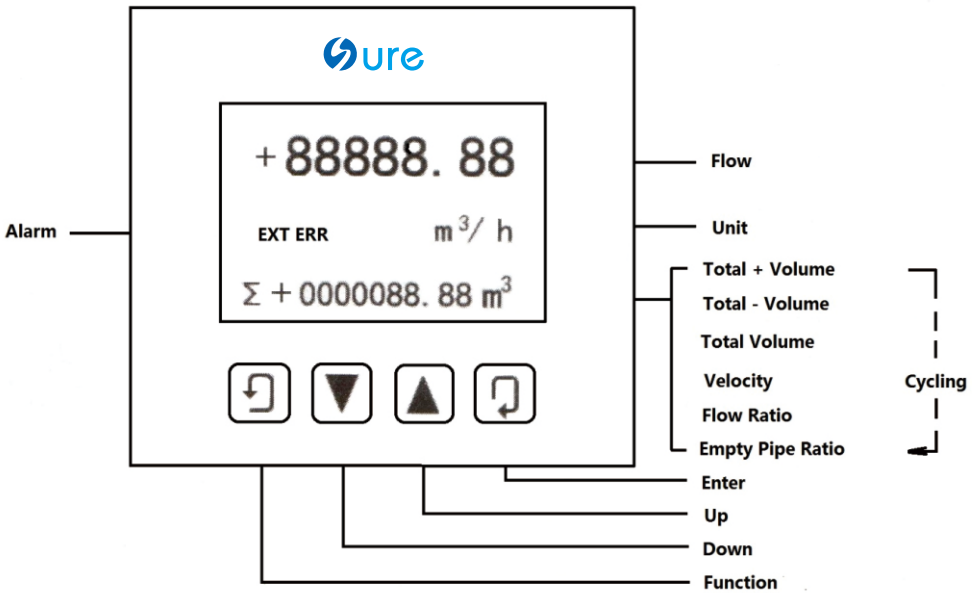
Display

Compact Type



①	Flow Rate
②	Flow Rate Unit
③	Flow Velocity; Percentage; Positive, Negative or Net Total (Switchable)
④	Keys (See table below for function and representation in text)

Remote Type



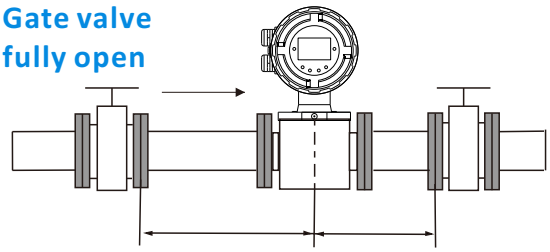
Up key	Plus 1 for the selected digit, or go back to the previous item
Down key	Minus 1 for the selected digit, or enter the next item
Function key + Up key	Move cursor to right
Function key + Down key	Move cursor to left
Function key + Enter key	Select the password menu, enter the password, then go to the lower submenu, and save parameters
Enter key	Go back to upper submenu. Pressing and holding for more than two seconds, then releasing it at Level One menu can activate the flow meter automatically go to the measurement mode

Main Performances of the Electrode Materials

Electrode Material	Application
SS316L	Applicable in water, sewage and low corrosive medium; Widely used in industries of petrol, chemistry, carbamide etc.
Titanium	Applicable in seawater, and kinds of chloride, hypochlorite salt, oxidable acid (including fuming nitric acid), organic acid, alkali etc. Not resistant to a pure reducing acid (such as sulphuric acid. hydrochloric acid) corrosion. But if acid contains antioxidant (such as Fe+++,Cu++)is greatly reduce corrosion
Tantalum	Having strong resistance to corrosive mediums that is similar with glass. Almost applicable in all chemicals mediums except for hydrofluoric acid, oleum and alkali
Hastelloy C	Be resistant to oxidable acid such as nitric acid, mixed acid as well as oxidable salt such as Fe+++,Cu++ and sea water
Platinum-iridium	Almost be applicable in all chemical mediums except fortis, ammonium salt
Tungsten Carbide	Tungsten carbide electrodes, due to their excellent wear resistance, are often used to measure media containing solid particles or media with higher abrasiveness, such as mud and pulp.

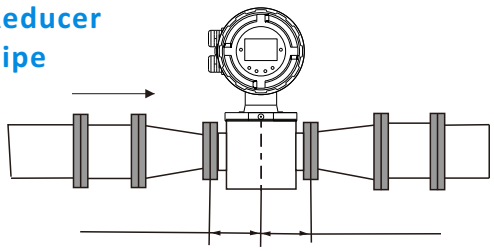
Installation Guide

Gate valve fully open



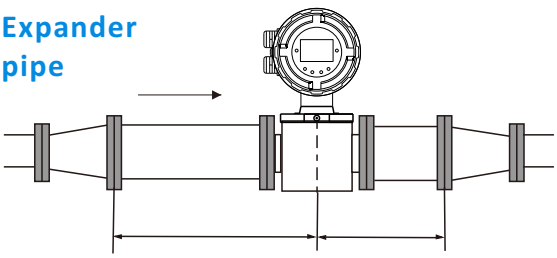
5D or more 2D or more

Reducer pipe



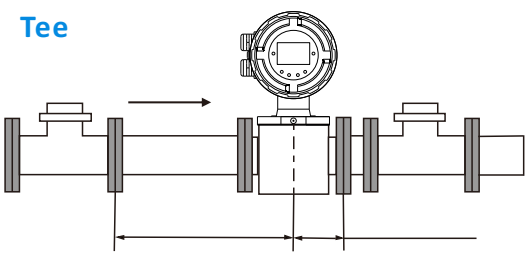
0 is allowable 0 is allowable

Expander pipe



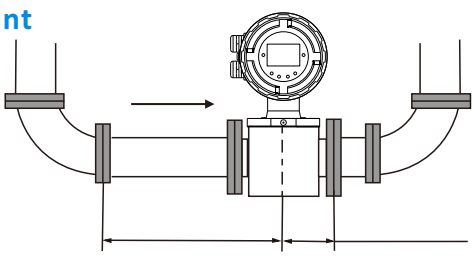
10D or more 2D or more

Tee



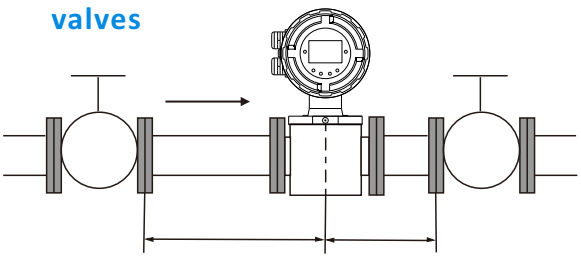
5D or more 0 is allowable

90-degree bent



5D or more 0 is allowable

Various valves

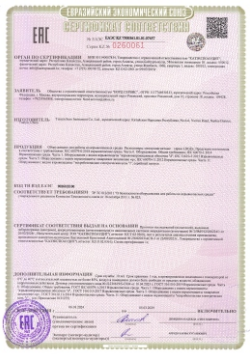


10D or more 2D or more

Magnetic Flow Meter Certificate

ATEX
Certificate

PED
Certificate



CU-TR 012 COC
Certificate

SIL
Certificate

Product List