KANAGAWA INSTRUMENTS

Electro Magnetic Folow Meter

Model: KEMF



Features

– High accuracy & wide flow range measurement

– 99.999% pure copper for oil

– No mechanically moving parts

– IP68 proof, maximum 3 meter immersion in water

– Bi-directional measure

– 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

– Calibration for all diameters (up to DN3000)

– Three electrodes

– ≥3mm thickness PTFE liner, durable service life

Application

The proven sensor for economical measurement of conductive liquids, KEMF, serves various basic applications in the chemical and process industry. Its ultra-compact transmitter delivers full performance on the smallest footprint and enables seamless system integration, making KEMF the preferred choice for skid builders, equipment manufacturers and system integrators.

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

- High accuracy & wide flow range measurement
- 99.999% pure copper for oil
- No mechanically moving parts
- IP68 proof, maximum 3 meter immersion in water
- Bi-directional measure
- 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
- Calibration for all diameters (up to DN3000)
- Three electrodes
- ≥3mm thickness PTFE liner, durable service life

Applications

- Water Treatment and Water Supply Systems: Used to measure the flow rate of tap water, wastewater, and sewage, helping to monitor and optimize the water treatment process.





- Chemical Industry: In the production process of chemical products, electromagnetic flow meters are used to measure the flow rate of corrosive liquids, slurries, and suspensions, ensuring precise control of chemical reactions.

- Food and Beverage Industry: Used to monitor the flow rate of liquid foods, beverages, syrups, etc., ensuring product quality and production efficiency.





- Pharmaceutical Industry: In pharmaceutical production, electromagnetic flowmeters are used to measure the flow rate of medicinal liquids, solvents, etc., to ensure the quality of drugs and the precision of the production process.

- Papermaking and Pulp Industry: Used to measure the flow rate of pulp, black liquor, white liquor, etc., to optimize the production process.





- Energy and Power Industry: In power plants, used to measure the flow rate of cooling water, steam, and other fluids, to monitor and control system efficiency.

- Mining Industry: Used to measure the flow rate of mine drainage, mineral slurries, etc., to help monitor and manage mining operations.

- Oil and Gas Industry: In the refining of oil and the processing of natural gas, used to measure the flow rate of oil products, natural gas, and other related fluids.





- Environmental Monitoring: Used to monitor the flow rate of rivers, lakes, and other water bodies, as well as in flood prevention and water resource management applications.

Electromagnetic Flow Meter Product Series

				
B-Compact Regular Type	Y-Explosion Proof Type	A-ATEX Explosion Type	HY-Slurry Type	W-Battery Type
				
B-Remote Type	H-Heat Meter Type	Mini Type	S-Sanitary Type	C-Insertion Type

Technical Data

***Common Type Magnetic Flow Meter**

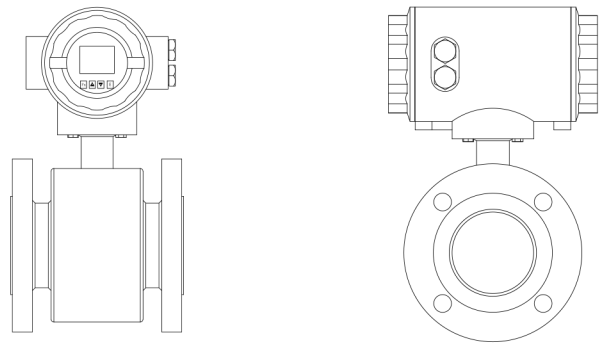
Diameter	**PTFE:** DN2.5-DN1000
	Rubber: DN50-DN3000
Flow Direction	Bi-direction
Repeatability Error	±0.1%
Accuracy	±0.5% of reading; ±0.2% of reading
Medium Temperature	**Rubber liner:** -20...+60°C
	PTFE liner: -20...+120°C
	PFA: -20...+180°C
	Ceramic: -20...+180 °C
Velocity	0.3-10m/s
Ambient Temperature	-20...+60°C
Relative Humidity	5%~95%
Power Consumption	Running power consumption 8W; Start up power consumption 12W
Protection	IP 65; IP 68 (Only for remote type)
Electrical Connection	M20*1.5 as default: 1/2"NPT optional

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

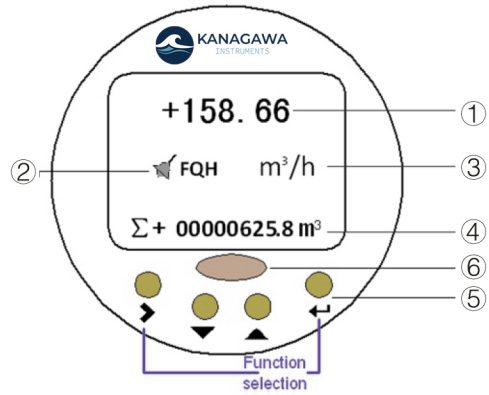
Note: *Our standard flow rate is refer to the velosity of 0.3m/s-6m/s, the 10m/s is customized.

Technical Drawings



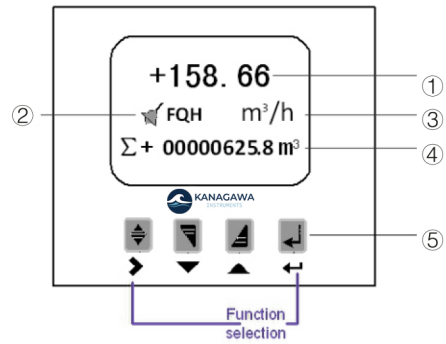
Display

Compact Type



①	Flow Rate
②	Alarm Symbol and Message: FQH; FQL; FGP; SYS
③	Flow Rate Unit
④	Flow Velocity; Percentage; Positive, Negative or Net Total (Switchable)
⑤	Keys (See table below for function and representation in text)
⑥	Infrared Sensor (not present in all signal converter versions)

Remote Type



①	Flow Rate
②	Alarm Symbol and Message: FQH; FQL; FGP; SYS
③	Flow Rate Unit
④	Flow Velocity; Percentage; Positive, Negative or Net Total (Switchable)
⑤	Keys (See table below for function and representation in text)

Grounding Rings

Grounding rings are used to suppress electrical interference at the installation location for electromagnetic flow meters.

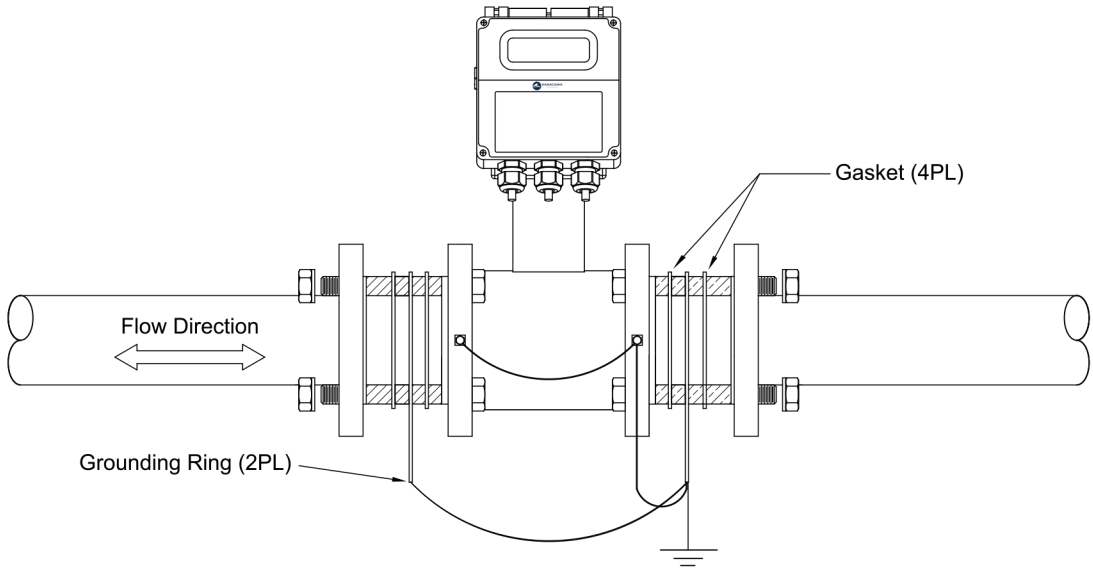
They are provided in pairs and are installed upstream and downstream of the flow meter. Grounding rings are flat wafer-style rings designed to be installed between an ANSI Class 150 flange and the inline electromagnetic flow meter flange face. The same grounding rings may also be sandwiched between flange pairs located upstream and downstream of Insertion Electromagnetic Flow Meters.

Use of grounding rings significantly reduces electrical noise and may be necessary for proper operation of electromagnetic flow meters installed in lined or non-conductive pipes.

The size of the grounding rings should always match the meter size (as opposed to the original pipe size) for installation with inline meters. Standard grounding rings are for use with ANSI Class 150 flanges and are made of 316 Stainless Steel. ANSI Class 300 grounding rings and rings made from Monel and Hastelloy are also available for special applications.



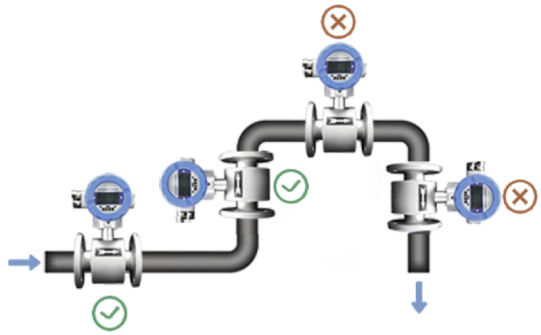
Inline Electromagnetic Flow Meter In Non-conductive Pipe



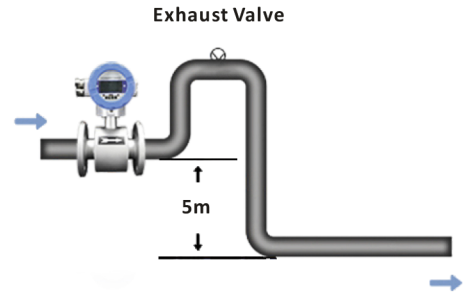
Main Performances of the Electrode Materials

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.
Ceramic	Resistant to vacuum, corrosion, wear, and extreme temperatures, widely used in chemical industry, papermaking and pulp, and water and wastewater treatment.

Installation Guide



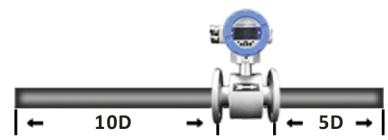
The flow meter should be installed at a lower level and vertically upwards of the horizontal pipe. Avoid installation at the highest and vertically downwards point of the pipe.



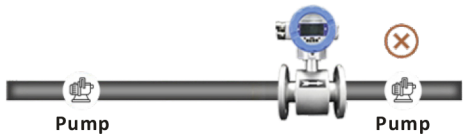
When drop is more than 5m, install exhaust valve at the downstream.



Install at the lowest point when used in poem drain pipe.



Need 10D of upstreat and 5D of downsteat



Don't install it at the entrance of pump, install it at the exit of pump.



Install at the rising direction.

Model Selection

Model	Suffix Code												Description
KEMF	❶	❷	❸	❹	❺	❻	-❼	❽	❾	❿	⓫	⓬	**Electromagnetic Flow Meter**
Type	B												B type
	Y												Y type
Diameter													Stand for diameter 0006: DN6; 0015: DN15 0100: DN100; 3000: DN3000
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
				C									Ceramic
Signal Output					0								No Output
					1								4-20mA / Pulse
Liner Material						X							Rubber
						F							PTFE
						A							PFA
						Z							Polyrethane and other liners (on request)
Power Supply							-0						110-240V AC
							-1						24V DC (20-36V DC)
Communication								0					No Communication
								1					Modbus RS485
								2					HART
								3					GPRS
								4					On Request (Profibus DP / Profibus PA, BACnet / IP, GSM, 4G, Foundation Field FF, Bluetooth, 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		Stainless Steel 304
											S6		Stainless Steel 316
Accuracy												2	± 0.2%
												5	± 0.5%

Electromagnetic Flow Meter Selection Guide

KEMF-B –50 – S – M – 1 – F – 1 – 0 – 1 – D16 – S4 – 5

LDG: Electromagnetic Flow Meter
B: B Type
50: DN50
S: Compact Type
M: SS316L
1: 4-20mA / Pulse
F: PTFE
1: 24V DC
0: No Communication
1: Grounding Ring
D16: DIN PN16 Flange
S4: Stainless Steel 304
5: ±0.5%