Electromagnetic Flow Meter

FEM06

| Features |

- Flow velocity range：0 ... 12 m/s
- Be applicable sewage, wastewater, chemical plants, food factory application
- IP68 enclosure that can be used for underground applications
- FEP liner suitable in vacuum tube
- High accuracy ±0.5% of reading
- Empty pipe, current excitation

Compact type

Remote type

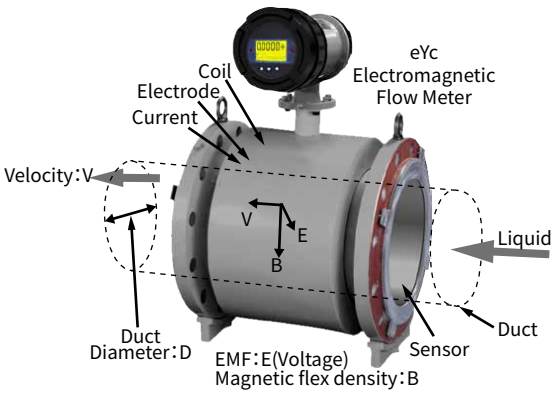
| Introduction |

FEM06 Electromagnetic Flow Meter is a flange type electromagnatic flow meter ideal for conductive liquids. It comes in sizes from 15 ... 800 mm flow tubes.
Electromagnetic Flow Meter is widely used for tap-water, waste water, food & beverage pulp & paper and many other applications.
Can be is a stand alone magmeter that could also be used with various configurations, such integral or remote and AC or DC power requirement. RS-485 communications are available.

| Specification |

Item	Function & Parameter
Diameter	15 ... 800 mm(1/2" ... 32")
Range	Velocity 0 ... 0.25 m/s min；0 ... 12 m/s max.
Material	Measuring Tube：Stainless steel 304
	Flange：Cabon steel(Standard)；Stainless steel 304(Option)
	Housing：Carbon steel(Standard)；Stainless steel 304(Option)
IP rating	IP65 for compact / remote version, and IP68 for remote version
Conductivity	To be more than 20 μS/cm
Power supply	DC 24 V, AC 220 V 50Hz
Output	4 ... 20 mA / Pulse；4 ... 20 mA / Pulse & RS-485
Liner	Rubber(50 ... 800 mm)
	FEP(15 ... 250 mm)； FEP(F46)(10 ... 250 mm) ；
	PTFE(15 ... 800 mm)； PFA(10 ... 400 mm)
Electrode	SUS316L；Hastelloy；Titanium；Tantalum
Process connection	Flange
Flange type	ANSI、DIN、JIS
Grounding resistance	＜10 Ω
Ambient Temp.	-25 ... +65°C
Temperature	80°C(Rubber)；-20 ... +100°C(PTFE)
	-40 ... +150°C(FEP)(F46)；-20 ... +120°C(PFA)
Accuracy (Velocity≧0.3 ... 12 m/s)	±0.5% of reading(15 ... 600 mm)
	1% of reading(700 ... 800 mm)
Operating pressure	4.0 Mpa：Max. pressure with flanges(10 ... 150 mm)
	2.5 Mpa：Max. pressure with flanges(200 ... 600 mm)
	1.6 Mpa：Max. pressure with flanges(700 ... 800 mm)

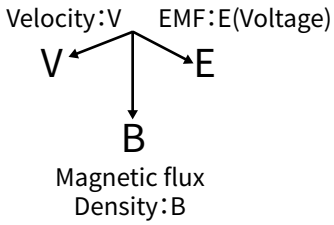
*Please make sure the product and the device which connect with RS-485 are on common ground, avoid damaged product.



Principle of electromagnetic flow meter

The Electromagnetic Flow Meter uses Faraday's Law of electromagnetic induction to measure the process flow. When an electrically conductive fluid flows in the pipe, an electrode voltage E is induced between a pair of electrodes placed at right angles to the direction of the magnetic field. The electrode voltage E is directly proportional to the average fluid velocity V.

E = K x B x V x D
K = Is instrument constant
V = Is average fluid velocity across the duct
B = Is magnetic flex density
D = Is diameter of measurement duct



| Flow Range |

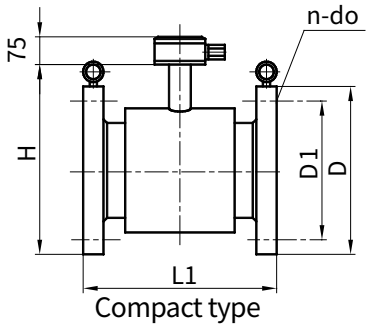
Nominal diameter (mm)	Flow range (m^3/h)	
	Flow rate (0.3 ... 1.0)m/s	Flow rate (1.0 ... 10)m/s
15	0.19 ... 0.64	0.64 ... 6.4
20	0.34 ... 1.33	1.13 ...11.3
25	0.53 ... 1.77	1.77 ... 17.7
32	0.87 ... 2.89	2.89 ... 28.9
40	1.35 ... 4.50	4.50 ... 45.0
50	2.13 ... 7.10	7.10 ... 71.0
65	3.57 ... 11.9	11.9 ... 119
80	5.43 ... 18.1	18.1 ... 181
100	8.49 ... 28.3	28.3 ... 283
125	13.3 ... 44.2	44.2 ... 442
150	19.1 ... 63.6	63.6 ... 636
200	33.9 ... 113	133 ... 1130
250	53.1 ... 177	177 ... 1770
300	76.2 ... 254	254 ... 2540
350	104 ... 346	346 ... 3460
400	136 ... 452	452 ... 4520
450	172 ... 572	572 ... 5720
500	212 ... 707	707 ... 7070
600	306 ... 1020	1020 ... 10200
700	416 ... 1385	1385 ... 13850
800	543 ... 1810	1810 ... 18100

| Flow Meter Dimensions |

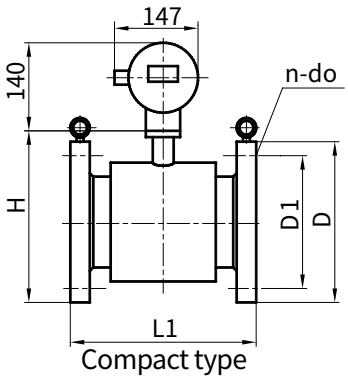
Nominal diameter (mm)	Transmitter size(mm)		
	L	B	H
4 Mpa			
DN15	200	142	243
DN20	200	142	243
DN25	200	142	243
DN32	200	142	243
DN40	200	158	266
DN50	200	170	272
DN65	200	183	285
DN80	200	200	296
DN100	200	235	285.5
DN125	200	270	318
DN150	300	300	347
2.5 Mpa			
DN200	350	360	398
DN250	450	425	458
DN300	500	485	515.5
DN350	500	555	579
DN400	600	620	635.5
PN2.5 Mpa			
DN450	600	640	690
DN500	600	715	760
DN600	600	840	880
PN1.6 Mpa			
DN700	700	895	970
DN800	800	1015	1080

| Dimension |

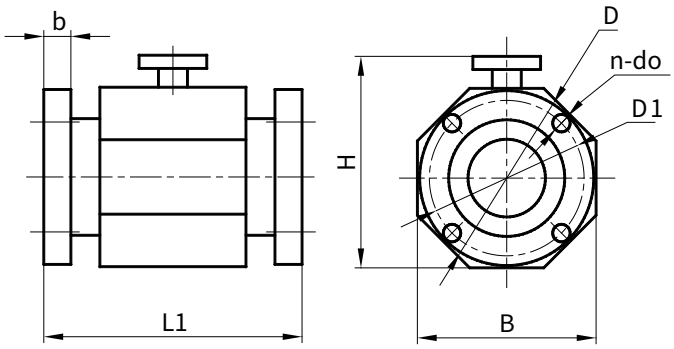
Unit：mm



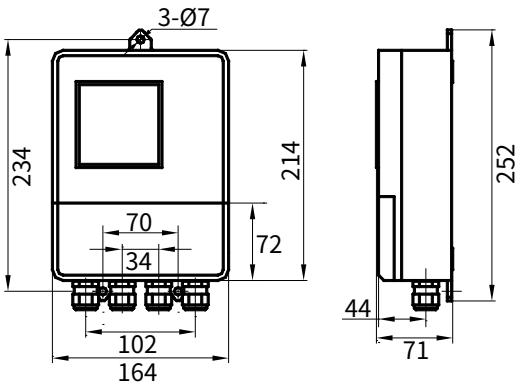
Compact type



Compact type

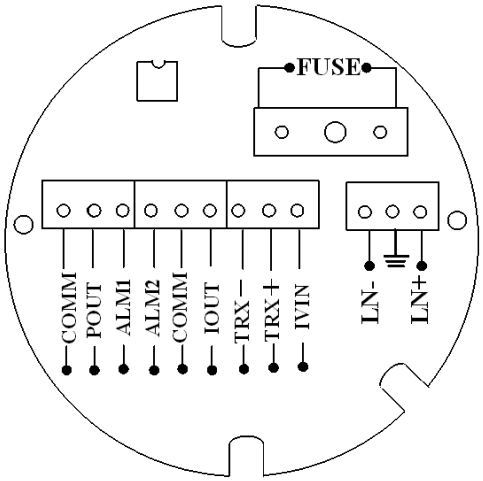


Remote type



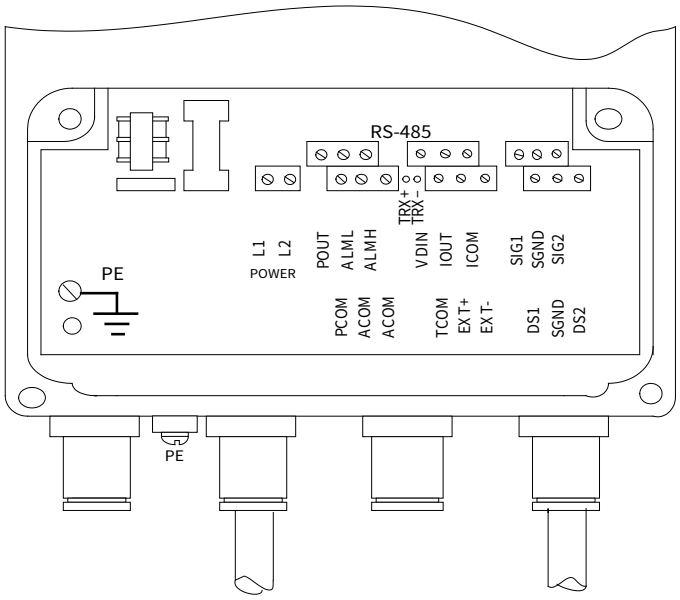
Remote type converter

| Compact Transmitter Wiring |



Compact transmitter wiring definition	
COMM	Frequency, pulse, Current common(Ground)
POUT	Two-way flow frequency pulse output
ALM1	High line alarm
ALM2	Low line alarm
COMM	Frequency, pulse, Current common(Ground)
IOUT	Flow current output / 2-wire current output
TRX＋	Communication(RS-485-A)
TRX－	Communication(RS-485-B)
IVIN	Voltage input 2-wire 24 V
LN＋	Power input AC 220 V
LN－	Power input AC 220 V

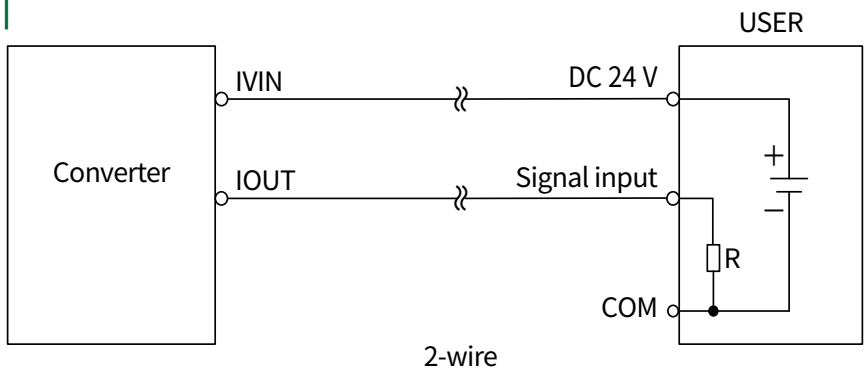
| Converter Wiring Diagram |



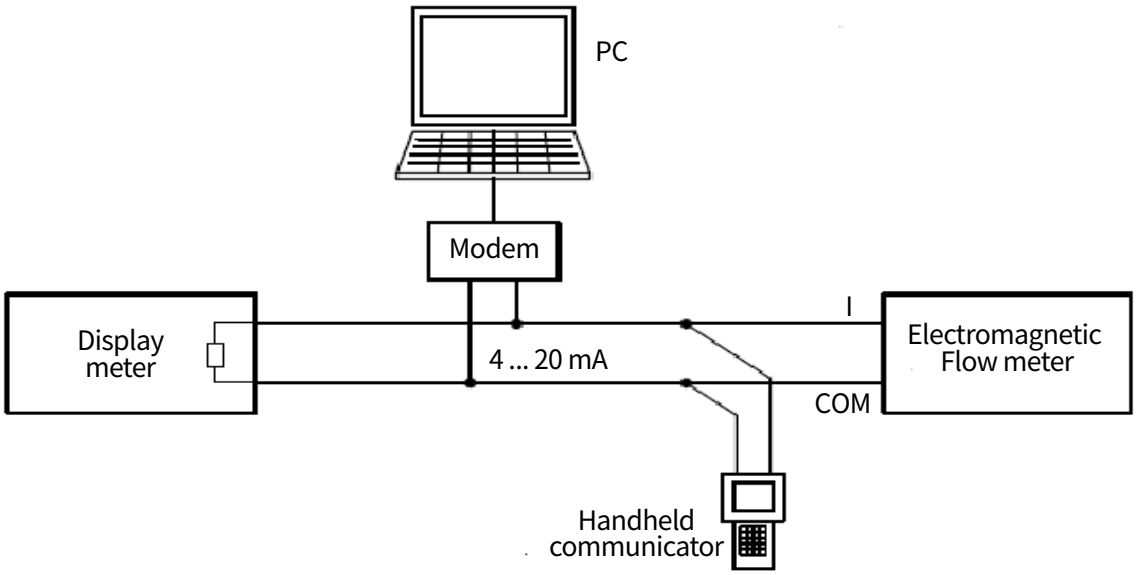
EXT＋：Exciting currency output＋
EXT－：Exciting currency output－

Each terminals mark	
Connect separate type sensor	SIG1：Signal 1
	SGND：Signal(Ground)
	SIG2：Signal 2
	DS1：Signal shield 1
	DS2：Signal shield 2
	EXT+：Energizing circuit+
	EXT-：Energizing circuit-
Analog current output	VDIN：Current 2-wire 24 V contact
	IOUT：Analog current output
	ICOM：Analog current output(Ground)
Frequency or pulse output	POUT：Flow frequency pulse output
	PCOM：Frequency pulse output
Two output alarms	ALMH：High line alarm
	ALML：Low line alarm
	ACOM：Alarm output ground
Communication output	TRX+：Communication output(RS-485-A)
	TRX-：Communication output(RS-485-B)
	TCOM：232 Communication(Ground)

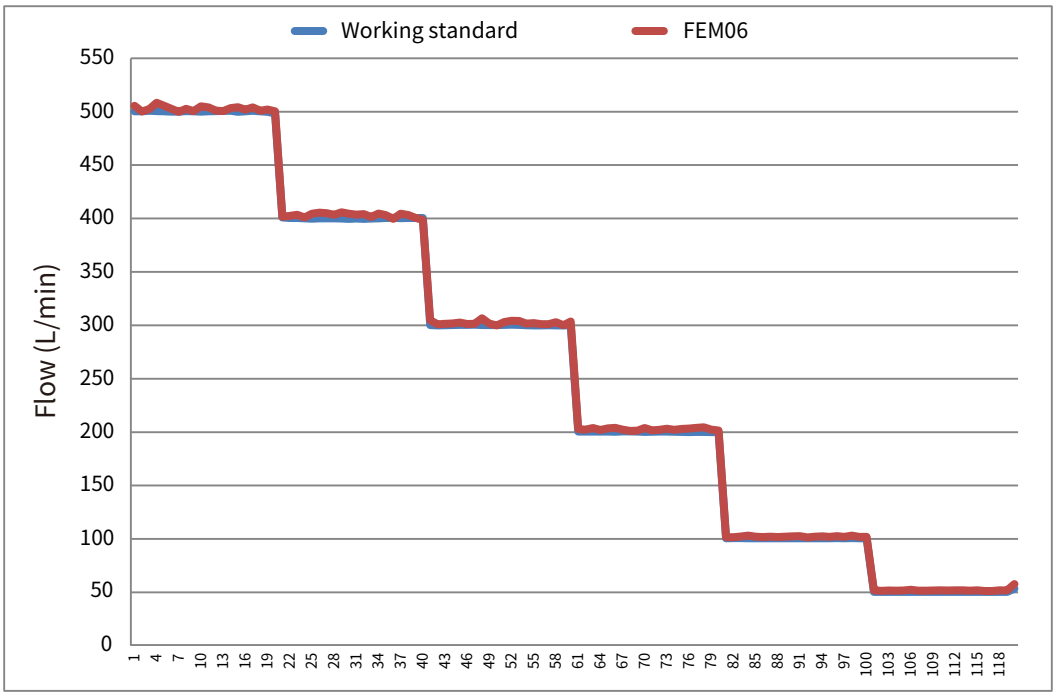
| Diagram |



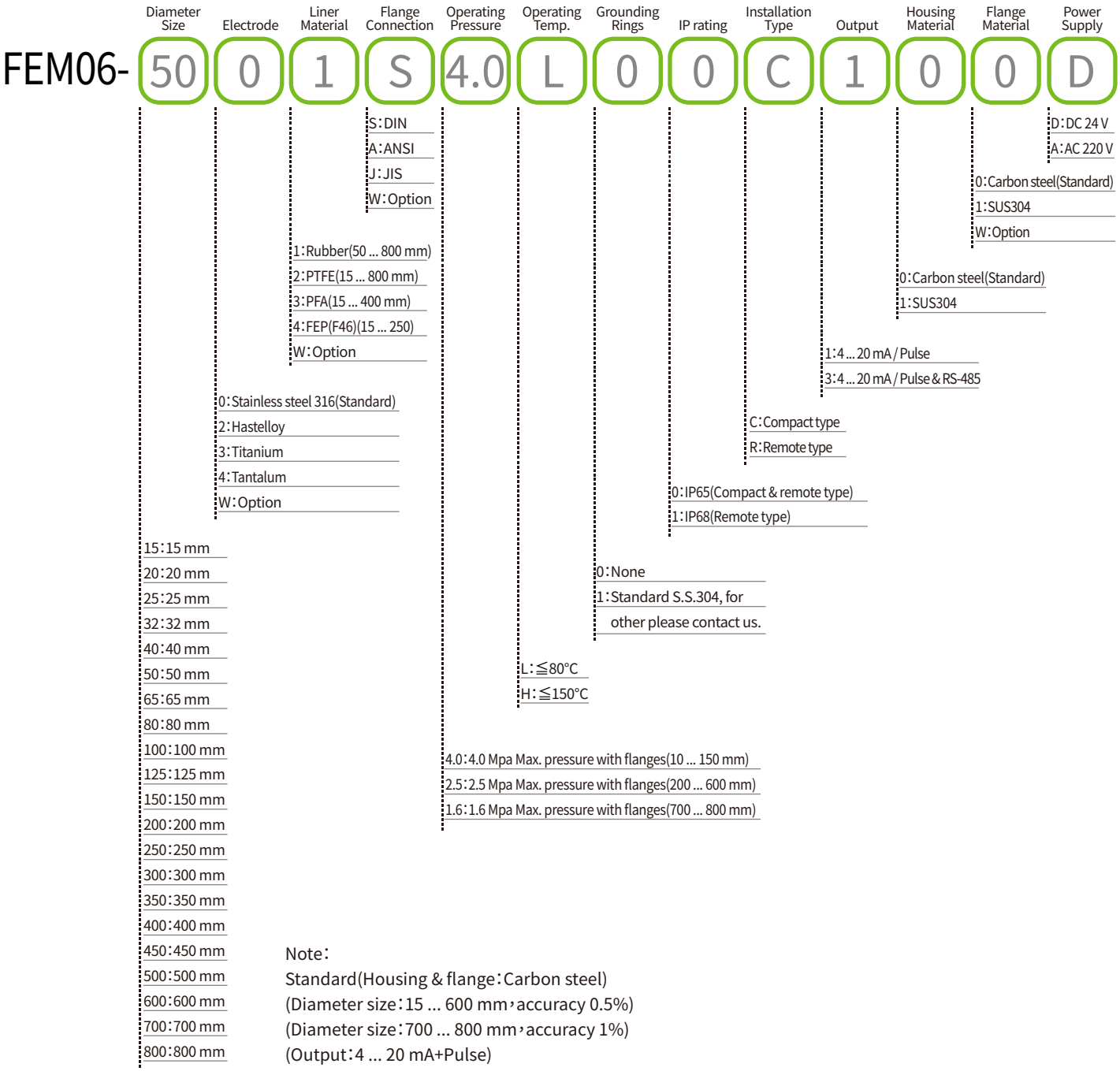
| Communication Network |



| Curves Graph |



| Ordering Guide |



Note:
Standard(Housing & flange:Carbon steel)
(Diameter size:15 ... 600 mm,accuracy 0.5%)
(Diameter size:700 ... 800 mm,accuracy 1%)
(Output:4 ... 20 mA+Pulse)

| Additional Option (ILAC / TAF) Test Report |

Additional option:(ILAC / TAF)Test report - Standard calibration laboratory(TAF accreditation:3032, complying with ISO / IEC 17025)
TAF has mutual recognition arrangement with ILAC MRA

Project	Measurand level or range
Flowmeters	Flow rate:2.4 ... 30 m³/h(40.0 ... 500.0 L/min)
	Flow velocity:0.2 ... 3 m/s
	8 basic points(8 basic points on average or specified by customer)