Full Protection & Maintenance

SYSCHEM®

SYS-FLOW

ELECTRO MAGNETIC FLOWMETER

Electromagnetic Flowmeter (10 to 1000 mm)

Summary

Sys-Flow electromagnetic flowmeter is made withinternational latest technology for electromagnetic flowmeter, used to measure the volumetic flow of the conductive liquid and slurry in the closed pipes. The new exciting mode has been adopted on the SMART transmitter of Sys-Flow electromagnetic flowmeter with low power consumption, stable zero and high accuracy. The 16 digits high-efficient microprocessor has been used on the transmitter, optional 2×16 digits display, convenient to set the parameters locally, reliable in programing. It has self-monitoring and diagnostic functions. There are threee totalizers in the bi-dirctional measuring system : Forward flow, reverse flow and net flow, forward reverse flow and various output(4 - 20mA, Opencollector pulse, RS485) ; ensure the compatibility of the system. Sensor with neoprene and polyurethane lining is intrinsically submersible structure.

Syschem Sys-Flow 1
(Combined Type)

Measuring Principle

The measuring principle of electromagnetic flowmeter is based on the electromagnetic induction law of Farady. The sensor is mainly composed of measuring tube with isolate lining, a pair of electrodes installed by penetration of the measuring tube wall, a pair of coils and iron core to produce working magnetic field. When the conductive fluid flows through the measuring tube of the sensor, the voltage signal in direct proportion to the average flow velocity of the fluid will be inducted on the electrodes. The signal is amplificatively treated by the transmitter to realize various display functions.

Syschem Sys-Flow R
(Separate Type)

Product Classification

Electromagnetic flowmeter is composed of sensor and transmitter. The two parts can be respectively formed in integral and remote model of flowmeters. Of them, the instrument with ex-proof function can be used in the specified ex-proof field. The sensor is connected with flange, with 7 kinds of electordes and 5 kinds of lining to be chosen. The transmitter has : process and slurry : push-button and magnetic-key ; with display and without display. Because the process, pushbutton transmitter is convenient for programming and setting the parameters, we suggest to give priority to select it

Spesification

① Measurement range in terms of flow velocity
0 ~ 0m.$3o 0 ~m1$0 0 m 0 to 1 0 ~m0$. 3
range is available optionally
② Accuracy : ±of the5r%ading Flow velocity ≥ m1$)
③ Fluid conductivity µs /c5m minimum
④ Fluid temperature
4 -P1olyurethane lining : to- 2+06 0 °C
4 -P2TFE lining : to- 2+01 2 0 °C
⑤ Ambient temperature : to- 2+06 0 °C
⑥ Structure NEMA 4P 6 (7Wateright st(andard)
IP 6 8Wateright op(tion)
⑦ Standard hazardous locations certifications Exd [a ia IICT 5

Model : Sys-Flow-I/R (Combined/Separate type)

- Mounting style : Flange connection type
- Fluid pressure : 0to 1Mpa(to be within the applicable flange limitation)
- Connection flange stadards : JIS 1 K0, ANSI 1 5 0 #HS, 2 K0, DIN PN 1 0 . . . .
- Principal materials : case-carbon steel
- Flange material - SUS 3 0 4 mm to1 6 5mm
- Carbon steel : 8 0m to 1 0 0m0
- Linings
- PFA(Teflon) for meter size 1 5to 6 5mm standard.
- Polyurethane for meter size 1 5to 3 0m0m
- NBR for meter size 3 5t0 1 0 0m0
- Measuring tube material : SUS 3 0 4
- Electrodes : SUS 3 1 s6tadard (Hastelloy C, titanium, platinum/iridium, tantalum, etc...)
- Coating : phthalic acid resion coating
- Dimension : see figure
- Cable connection part : 3 / 4NPT 4hade screws are required

Sys-Flow-I and Sys-Flow-R converters

① Power supply : 9 0to 2 5V0ac, 5 0 /H6 0(stadard)
2 4dc (1 8 ~V3dc)
Power consumption : 1 0watts maximum
② Output signals
- Current output : 4 - m2A0dc (load resistance 0to 1 0 0o0m load)
- Digital output : one point (stadard), transistor open collector
output capacity : 3 0dc, 2 0m0A maximum
- Pulse rate : 3 .to6 3 , 6 0 0pulse/0r0
③ Communications output - RS 4 8 5utput (option)
④ LCD display :
full dot- matrix 5 0 × 2o5LCD display (back-light provided)
⑤ Parameter settings
- Zero adjustment : zero point adjustment can be standed by pressing the switch in the converter
- Turn-on time : 3 0minutes to rated accuracy power up : 5seconds from power interruption

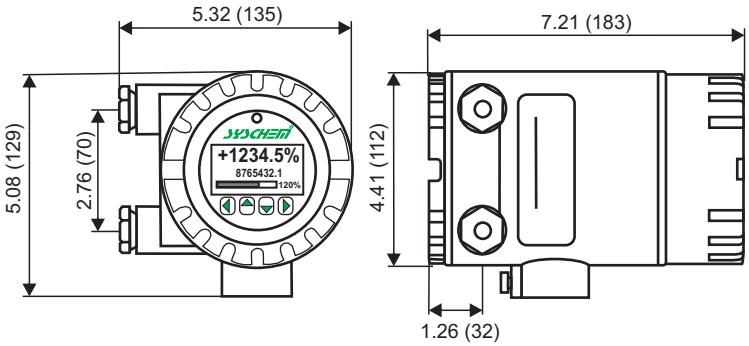
- Start-up time : 0 .s5conds from zero flow
- Low flow cut off : adjustable between 0 .a0d 9 . 9%max, below selected valve, output is driven to the zero flow rate signal level.
- Damping : adjustable between 0 .a1d 9 9seconds

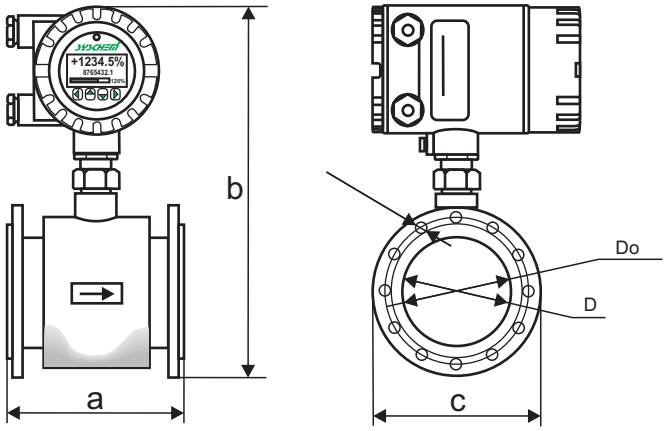
⑥ Case : aluminum alloy (equivalent of IP 6 7)

⑦ Vibration resistance 1 0to 1 5Hz with acceleration of 9 m/s 2
No defect in putting vibration to each direction of 3 Hz with 2 9 m/s2 in 4h

⑧ Dimension and weights : see figure

Dimensions (combained type)

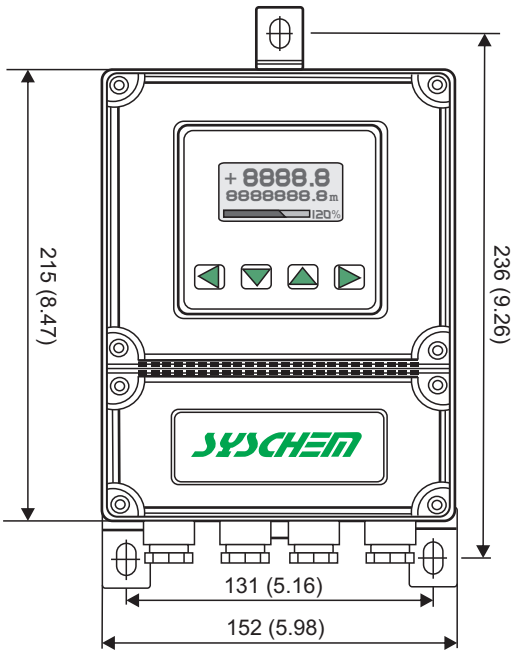


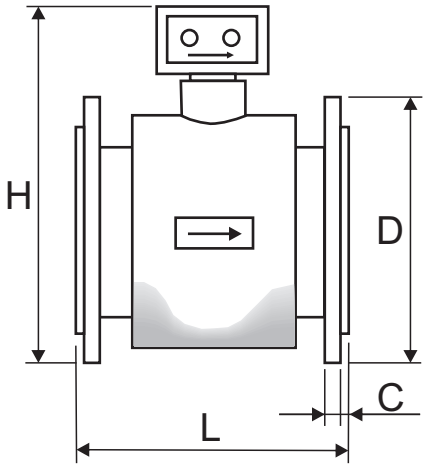


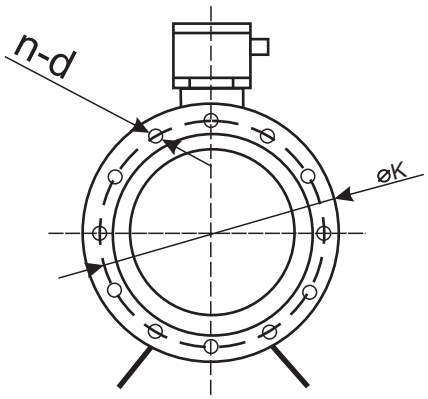
Size (mm)	Pressure Limits(Mpa)	Outline size(mm)		
		a	b	c
10	4.0	160	325	90
15	4.0	160	325	95
20	4.0	200	330	105
25	4.0	200	340	115
32	4.0	200	350	140
40	4.0	200	355	150
50	4.0	200	371	165
65	4.0	200	290	185
80	4.0	200	405	200
100	1.6	250	385	220
125	1.6	250	460	250
150	1.6	300	455	285
200	1.6	350	515	340
250	1.6	400	572	405
300	1.6	500	630	460
350	1.6	500	680	520
400	1.6	600	745	580
450	1.6	600	805	640
500	1.0	600	867	670
600	1.0	600	980	780
700	1.0	700	1065	895
800	1.0	800	1172	1015

Flange size (mm)		
D	D 0	N×A
1 0	6 0	4 × 1 4
1 5	6 5	4 × 1 4
2 0	7 5	4 × 1 4
2 5	8 5	4 × 1 4
3 2	1 0 0	4 × 1 8
4 0	1 1 0	4 × 1 8
5 0	1 2 5	4 × 1 8
6 5	1 4 5	8 × 1 8
8 0	1 6 0	8 × 1 8
1 0 0	1 8 0	8 × 1 8
1 2 5	2 1 0	8 × 1 8
1 5 0	2 4 0	8 × 2 2
2 0 0	2 9 5	1 2 × 2 2
2 5 0	3 5 5	1 2 × 2 6
3 0 0	4 1 0	1 2 × 2 6
3 5 0	4 7 0	1 6 × 2 6
4 0 0	5 2 5	1 6 × 3 0
4 5 0	5 8 5	2 0 × 3 0
5 0 0	6 2 0	2 0 × 2 6
6 0 0	7 2 5	2 0 × 3 0
7 0 0	8 4 0	2 0 × 3 0
8 0 0	9 5 0	2 4 × 3 3

Dimensions (Separate type)



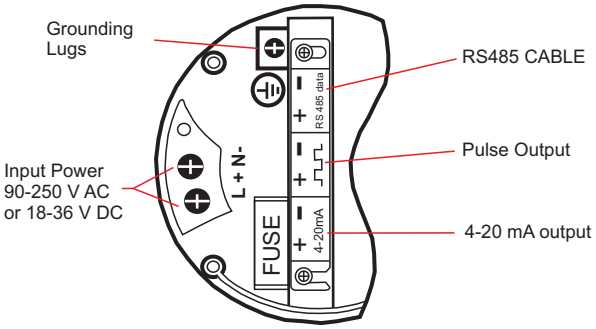




Size (mm)	Pressure Limits(Mpa)	Outline size(mm)		Flange size (mm)			
		L	H	D	K	n-d	C
10	4.0	160	227	90	60	4×14	16
15	4.0	160	227	95	65	4×14	16
20	4.0	200	232	105	75	4×14	18
25	4.0	200	242	115	85	4×14	21
32	4.0	200	252	140	100	4×18	21
40	4.0	200	257	150	110	4×18	21
50	4.0	200	273	165	125	4×18	23
65	4.0	200	292	185	145	8×18	25
80	4.0	200	307	200	160	8×18	22
100	1.6	250	287	220	180	8×18	22
125	1.6	250	362	250	210	8×18	22
150	1.6	300	357	285	240	8×22	24
200	1.6	350	357	340	295	12×22	24
250	1.6	400	474	405	355	12×26	26
300	1.6	500	532	460	410	12×26	28
350	1.6	500	582	520	470	16×26	30
400	1.6	600	647	580	525	16×30	32
450	1.0	600	707	640	585	20×30	34
500	1.0	600	769	670	620	20×26	28
600	1.0	600	882	780	725	20×30	30
700	1.0	700	967	895	840	20×30	30
800	1.0	800	1074	1015	950	24×33	32

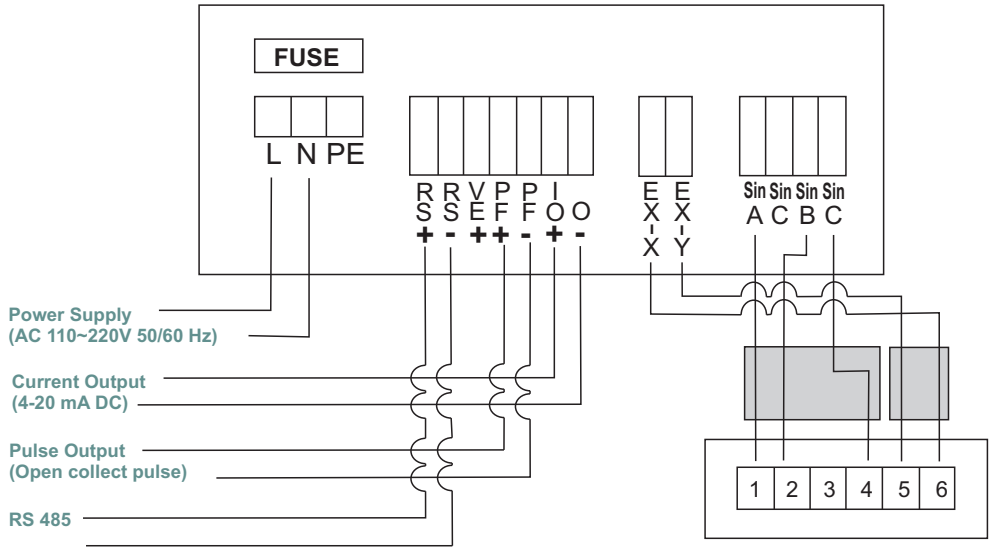
External connections

Combined type Sys-Flow I



Symbol	Description	Cable
L + L - FG	Power supply Frame grand	Power cable
4-20mA + -	Current output (4-20mAdc)	I/O cable
 + -	Digital output (Open collector pulse)	
RS485 + -	data RS485 communicative (option)	

Combined type Sys-Flow R



Sin-A-1 Sin-B-2 Sin-C-4
EX-X-5 EX-Y-6

Symbol	Description	Cable
L N	Power supply	Power cable
IO + IO -	Current output (4 - 2 0 mAdc)	
PF + PF -	Digital output (Open collector pulse)	I/O cable
RS + RS -	RS 4 8 5 communicative (option)	
EX-X EX-Y	Excitation output	X(black) Y(green)
Sin A Sin B Sin C	Signal input	A(red) B(ground) C(yellow)

Sheet of flow velocity vs flowrate

Meter size	Flow rate (unit : m3/h)		
(mm)	0.3m/s	1m/s	10m/s
10	0.10	0.27	2.7
15	0.19	0.63	6.3
20	0.40	0.90	9
25	0.53	1.76	17.6
32	0.86	2.89	28.9
40	1.35	4.52	45.23
50	2.12	7.06	70.67
65	3.58	11.95	119.5
80	5.42	18.09	180.9
100	8.48	28.27	282.7
125	13.25	44.17	441.7
150	19.08	63.61	636.1
200	33.93	113.1	1.131
250	53.01	176.7	1.767
300	76.34	254.5	2.545
350	103.9	346.4	3.464
400	135.7	452.3	4.523
450	171.7	572.5	5.725
500	212.1	706.9	7.069
600	305.4	1.018	10.180
700	580	1.320	13.200
800	850	1.800	18.000
900	1.000	2.400	24.000
1,000	1,150	2,700	27,000